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ABSTRACT

A study was conducted to identify and analyze clinical and nonclinical problems commonly met by dental practitioners, and the strategies and resources used by dentists to resolve these problems. Nearly 50 individuals in dentistry and related areas were organized into a steering committee and four task groups. Data were gathered through meetings of these groups and through written workbooks completed by participants. Results indicated that nonclinical practice problems are identified as problems more frequently than clinical problems, and are more difficult for practitioners to resolve. Different types of problems occur at different times in the lifetime of a dental practice, and a large number of problems are identified within the first five years of practice. Solution strategies to practice problems involve the use of multiple resources, frequently mixing formal resources such as education with informal peer consultation and independent study. Peer consultation was the most frequently mentioned resource in problem solving; continuing dental education was the fourth most frequently mentioned resource. Conclusions regarding the occurrence and distribution of problems in dental practice and the solution strategies employed in resolving problems are examined, and recommendations for research and development in problem-oriented continuing dental education are offered. Forms and materials used with group members are appended, along with a taxonomy of problem areas in dental practice and a list of resources for problem solving. (Author/SW)

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PREFACE

The project described in this report was an exploratory study of problems in dental practice and the solution strategies employed by dentists in resolving practice problems. The study involved nearly fifty individuals in dentistry and related areas. A study Steering Committee provided advice and assistance to the staff throughout the study. Four Task Groups composed of dental practitioners and dental practice consultants provided data for analysis.

Two project consultants were retained to provide technical assistance and guidance to the study staff. Dr. Malcolm Knowles, Raleigh, North Carolina, provided expertise in adult education; Dr. Roy Lindahl, Chapel Hill, North Carolina, provided advice and assistance in continuing dental education.

The DHHS Project Officer, Dr. Donald Blandford, provided guidance for and participated in the development of the study. The Principal Investigator for the study was Irene A. Jillson, who had overall responsibility for the development and conduct of the study. The Project Director was J. K. Dane who managed the project activities and was responsible for the development of study materials and reports. Christopher Rubino, the project Research Assistant, was responsible for contact with Task Group and Steering Committee members and for assistance in the development and analysis of study materials.

Cora Locks, Office Manager was responsible for travel and other logistical arrangements for the Steering Committee and Task Group meetings. Lucille Eaddy, Executive Secretary, prepared the project materials and reports.

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ABSTRACT

The purpose of this study was to identify and analyze clinical and non-clinical problems commonly met by dental practitioners, and the strategies and resources used by dentists to resolve these problems. The study involved nearly 50 individuals in dentistry and related areas, organized into:

(1) a Steering Committee to provide project guidance, identification of task group consultants, refinement of study methods, and analysis of study results; and

(2) four Task Groups composed of general dental practitioners and dental practice consultants who provided information regarding clinical and non-clinical problems met in dental practice and the strategies and resources used to resolve these problems.

Data for the study were gathered through Steering Committee and Task Group meetings, and through written workbooks completed by study participants.

Study results indicated that non-clinical practice problems are identified as problems more frequently than clinical problems, and are more difficult for practitioners to resolve. Different types of problems occur at different times in the lifetime of a dental practice, and a large number of problems are identified within the first five years of practice. Solution strategies to practice problems involve the use of multiple resources, frequently mixing formal resources such as education with informal peer consultation and independent study. Peer consultation was the most frequently mentioned resource in problem

solving; continuing dental education was the fourth most frequently mentioned resource.

The study draws conclusions regarding the occurrence and distribution of problems in dental practice and the solution strategies employed in resolving problems. Recommendations are offered for research and development in problem-oriented continuing dental education.

CHAPTER 1:

INTRODUCTION

INTRODUCTION

Overview of the Study

The relationship between continuing dental education and the continuing competency of dental professionals has become an issue for debate among dental professionals and in the public arena. Professional attention has been directed toward questions of the appropriate role of continuing dental education in serving the profession (Chambers and Hamilton, 1975), and the relationship between participation in continuing dental education and professional competency (Weinstein et al., 1977). Public attention has focused on the use of mandatory continuing education as a requirement for relicensure.

One question central to both the professional and public debates over continuing education and its role in competency maintenance concerns the quality of education provided. The research evidence necessary to clarify this question presently does not exist. In addition, there is an awareness in dentistry that the continuing education of the dentist involves not only school-based continuing education courses, but also such activities as study club meetings, independent study in the journal literature, peer interaction, and education offered through the professional associations. The contribution of these diverse activities to the continuing competency of the professional is also not understood.

Critics of continuing professional education suggest that neither mandatory continuing education, nor continuing education as presently delivered are likely to contribute

to the enhancement of professional competence (cf., Francis, 1976; Libby, et al., 1975; and Miller, 1967). These critics have suggested that continuing education would be improved by a reorientation of the learning process to address practice problems rather than subject matter areas. A problem orientation to education is claimed to better characterize the adult learner, while a subject matter organization is better suited to the needs of the undergraduate learner.

There are several barriers apparent to the reorganization of continuing education toward a problem-centered approach:

* while studies have been conducted to identify needs for continuing education courses, little or no data exist regarding the kinds of problems dentists actually meet in practice and how continuing education might be reorganized to respond to these problems;

* few data exist on the problem-solving strategies presently used by dentists, or on the role of continuing education as a problem-solving resource; and

* there is no more information on the relative efficacy of a problem-oriented approach to continuing education than there is for more traditional models of education, in terms of its ability to contribute to the enhancement of professional competence.

The present study was designed to gather information relevant to the first two barriers identified. The intent of the study was to:

* identify and analyze clinical and non-clinical problems commonly met by general dental practitioners during the lifetime of a dental practice; and

* identify and analyze the strategies and resources commonly used by dentists in resolving these problems.

A variety of research questions were of interest. For example, is there a time in the development of a dental practice when solving certain kinds of clinical problems is of sufficiently high priority that practitioners will search systematically for solutions? What are the conditions that make personnel problems appear of greatest concern? Do dentists use similar strategies in the solution of similar problems, or solve problems in consistent ways? Are there differences in the strategies or resources used to solve clinical and non-clinical problems?

The study was designed as an inquiry into the problems and problem-solving behavior of the general dentist. Other groups in dentistry, such as dental auxiliaries or specialists, may experience different problems or have access to different resources. Since this was a pilot study, it was necessary to restrict the study sample to a definable group within dentistry. Even within this group, generalizations are made cautiously.

The study involved a Steering Committee, Project Consultants, and four Task Groups composed of general dental practitioners and dental practice consultants. The Steering Committee and Consultants provided technical assistance throughout the study; the Task Group members met in small group meetings to provide specific data for the identification of dental practice problems and solution strategies.

The outcome of the study should be helpful in designing and developing problem-oriented educational approaches which correspond to the problem-solving strategies used

by dental practitioners. Study products should be of use to dental schools, to professional dental associations such as the The American Dental Association or The Academy of General Dentistry, or to other organizations interested in the design of problem-oriented forms of continuing dental education.

In the following pages we present a brief theoretical background to the study. A description of the methods and materials used during the project is provided in Chapter 2, the results are presented in Chapter 3, and study conclusions and recommendations appear in Chapter 4.

Background to the study. Little more than a decade ago, critical thinking about the problems of maintaining professional competence and freshness over a lifetime of practice centered largely on the responsibility of the individual practitioner. As Hozid (1969) observed: "the practitioner is chastised in many articles on continuing education for not fulfilling his responsibility; he is labelled apathetic" (p.1301). The attitude that continuing education is a necessary professional responsibility in dentistry has been incorporated into both state law, and into the by-laws of professional associations. The rationale for mandatory continuing education requirements make explicit reference to the presumed apathy of some segments of the profession:

> "While voluntary continuing education programs may serve the same purpose (assuring that dentists keep current in their professional knowledge) for the majority of practitioners who do assume responsibility for continuing their own education, the

> the Board (Minnesota) feels that a requirement for license renewal is the only way to reach that segment of the profession that needs some external pressure to do so. Although no law can mandate learning, it does at least ensure that all dentists will be exposed to learning opportunities. (McDonnell, 1976, p. 1223)."

More recently, criticism has turned toward the continuing education process, suggesting that continuing education is unresponsive to the needs of practitioners. Critics of the continuing education process have suggested that it is basically "subject-centered" (Miller, 1967; Francis, 1976) or "child-oriented" (Libby, et al., 1975) while the adult learner is primarily oriented toward practical problems. In this view, it is not the apathy of the professional which must be overcome in helping to maintain professional competence and freshness, but the inertia of a system of education which is not well suited to the adult learner. Some evidence can be marshalled for either view.

The Individual Adult Learner. A study of New England dentists found some who had not taken continuing education courses, and, for a variety of reasons, were not interested in doing so (Wechsler, et al., 1969). Cyril Houle provided theoretical support for the notion that there are differences in the desire to learn on the part of professionals. As a result of his research, Houle (1975) described a classification scheme for members of a profession which ranged incumbents on a natural curve from "innovators" and "pace-setters" to "laggards". On the other hand, there is some theoretical support for the view that the adult learner is different from the student,

and that this difference has implications for the way in which the adult approaches learning. Knowles (1973) reviewed theories of human learning and development as they apply to the adult learner and concluded:

> ...as an individual matures, his need and capacity to be self-directing, to utilize his experience in learning, to identify his own readiness to learn and to organize his learning around life problems, increases steadily from infancy to pre-adolescence, and then increases rapidly during adolescence (Knowles, 1973, p. 43).

In fact, empirical research into the actual learning behavior of adults suggests that apathy may not be a problem at all. Allen Tough (1971) described the results of a series of studies carried out at the Ontario Institute for Studies in Education to determine why, what and how adults actually learn. The results of Tough's research suggest that adults are generally proactive learners. They identify personal needs for additional information, plan a means of acquiring that information and then proceed. The amount of learning which an adult does in a year's time varies considerably, but in Tough's research virtually all adults interviewed could identify at least one or two of what he called learning projects which had been undertaken in the preceding year, and the median was eight learning projects.

According to Tough:

> Many learning projects are initiated for highly practical reasons: to make a good decision, build something or carry out some task related to one's job, home, family, sport, or hobby. Adult learning is also motivated by curiosity, interest, and employment. A few projects are motivated by credit toward a degree or certificate.

> About 70% of all learning projects are planned by the learner...other learning projects rely on a group or instructor, or private lessons, or on some nonhuman resource (Tough, 1971, p. 1).

The actual learning behavior of the adults Tough interviewed was oriented toward self-identified problems which people actively attempted to solve in a systematic fashion through additional learning. Furthermore, the majority of the problem-solving behavior took place outside of the context of the formal classroom setting, and frequently without the aid of others.

Tough's research has implications for understanding the type of learning activities which might be appropriate for use with dental professionals. In dentistry, it is well recognized that not all continuing education activities are carried out in the context of the formal classroom situation. Continuing education is also offered through dental professional organizations and study clubs; professional peer interaction, and journal review, also are components of professional learning. The degree to which these latter activities contribute to the development of the dental professional has not been evaluated.

Responsiveness of the continuing education process. The problem-oriented, self-directed nature of the adult learner is becoming increasingly a topic of discussion in the professions. Articles on self-directed learning have appeared in dentistry (Francis, 1976), medicine (Libby, et al., 1975), pharmacy (Knox, 1975), nursing (Stein, 1971; Tibbles, 1978), and the auxiliary health professions

generally (Knowles, 1978).

Francis (1976) suggested a reorganization of continuing dental education to improve its use in enhancing the competency of dental professionals. The elements of Francis' proposal included:

* establishing standards of competency for dental professionals, and standards of quality for continuing education programs;
* developing a problem-oriented approach to continuing education which translates "knowledge into action-oriented problems (Francis, 1976, p. 1120);"
* developing learning activities appropriate to the learner's style, and the type of knowledge to be transmitted;
* motivation for self-directed, lifelong learning (to be begun in the preparatory stages of dental education); and
* evaluating the improvement in practitioner competence resulting from continuing education.

Some elements of this proposal could be addressed through existing research and experience in dentistry. Competency standards are presently applied to dentists at the entry level of the profession by dental examining boards, and undergraduate courses in dental education are presently subject to accreditation. Further, evaluation methods exist that could be used to assess improvements in competence resulting from continuing education. There is little information about specific practice problems to support the development of problem-oriented continuing education, and little information about the actual learning activities of dental professionals.

Implications for the present study. The present state of knowledge about continuing dental education and its relationship to professional competence is such that few conclusions can be drawn in large part because the effect of present approaches to continuing education on professional competency is not known.

The research and theory in adult education described above would appear to support two contentions:

(1) adults are problem-oriented in their approach to learning, and self-directed in terms of their identification of learning needs and their selection and use of resources to meet those needs; and

(2) the adult learner uses a variety of resources to satisfy learning needs, not all of which, nor indeed even a majority of which, may be formal educational resources.

However, alternative approaches involving a problem-oriented approach have not been attempted and are not likely to be attempted until information is available with regard to: 1) the types of problems which education should address; 2) the types of learning activities which should be developed; and 3) the manner in which activities other than continuing education are integrated into the educational and experiental development of professionals.

Study Purpose

The present study was designed to address the need for information on which to base developments in problem-oriented continuing education, as a necessary first step toward determining whether such an educational approach may prove more effective than approaches currently in use. The study was intended to be flexible and exploratory in nature. It

examined what might best be described as the natural history of problem solving behavior in dental practice as a means of identifying practice problems, and understanding the types of resources and strategies which practicing dentists bring to bear in trying to solve these problems. The study went beyond an examination of the role of continuing dental education to encompass a variety of different resources and activities which dentists use in problem solving.

The study had two general aims:

* to identify and describe the common problems which dental practitioners face during the lifetime of a practice and the solution strategies they develop to resolve these problems; and

* to help provide an empirical basis for the development of educational experiences which might better address identifiable practice problems.

In reviewing the nature of problems and solution strategies in dental practice, it was recognized that problems may be of either a clinical nature (that is, having to do with the direct care of patients) or a non-clinical nature (having to do with the efficient management of a practice). It was also recognized that the solution strategies which practitioners develop to deal with these problems entail a variety of self-developed strategies which may or may not include formal participation in education, and, indeed, may stray far from what is commonly perceived as education. For instance, the decision to participate in civic affairs may be a solution strategy to the problem of promoting public knowledge about the existence of a dental practice and is as

important to understand as the decision to take a formal continuing education course to learn about a new technique. Either of these decisions may represent a valid and viable solution strategy to a practical problem in professional life.

The study was designed to be flexible and exploratory in order to identify a broad range of practice problems and a variety of solution strategies which have been developed to resolve those problems. Practice problems and solution strategies were expected to vary among practitioners, different types of practices were expected to give rise to different problems, and different problems were expected to arise at different times during the lifetime of a practice. It was also expected that some problems cannot be solved, or at least that the solution strategies developed would represent only temporary solutions to problems which may be ongoing. The intent of the study was to identify and define these problems, and indicate the various approaches which have been taken to their solution. This effort may help provide the empirical base upon which others might build through additional research and, ultimately, by designing educational experiences that better fit the practicing dentist's needs.

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CHAPTER 2:

STUDY METHODS

STUDY METHODS

Overview

The design of this study centered around the use of structured small group meetings. The approach involved the use of nearly fifty consultants in dentistry and related areas, organized into:

(1) a Steering Committee charged with providing methodological and analytic assistance throughout the one year length of the study; and

(2) four Task Groups composed of solo, general dental practitioners and dental practice consultants to provide specific information on clinical and non-clinical problems met in dental practice and the strategies and resources used to resolve these problems.

In addition to the groups described above, the study utilized the services of two Project Consultants, Dr. Malcolm Knowles and Dr. Roy Lindahl. These consultants were retained as experts in adult education and continuing dental education respectively, to serve in an ongoing technical advisory capacity to the study staff.

The study developed sequentially beginning with the initial identification of problems and solution strategies by the study Steering Committee. Subsequently, the problems were defined, classified, and analyzed, and the solution strategies were described and matched to the problems.

Steering Committee. The study's Steering Committee was an expert advisory group intended to provide technical advice and assistance over the duration of the study. The Committee was involved throughout the study in the development of materials, in conceptualizing and refining study methods, and in both nominating potential Task Group members

and suggesting additional sources of nominees. The Steering Committee also served in an advisory capacity during the analysis phase of the study, providing consultation and assistance in the analysis and presentation of information resulting from the study.

Task Groups. The study used four Task Groups of approximately nine members each. Each group was composed of general dental practitioners and dental practice consultants, carefully drawn to reflect a wide range of practice characteristics. The individual Task Groups were not expected to be representative of the dental profession, nor were all of the Task Group members selected to constitute a representative sample of dentists. However, the breadth of practical experience represented on the Task Groups enabled us to identify a wide range of problems in dental practice and identify many different solution strategies for resolving those problems.

Each Task Group met once during the course of the study, to work on one specific aspect of the study design. The information gathered from the Task Group meetings was integrated and analyzed by the study staff with the assistance and advice of the Steering Committee. The activities of the Task Groups were intensive, directed efforts to achieve specific outputs, and study materials were designed to facilitate these efforts. The sequencing of the Task Group meetings allowed an opportunity for development and refinement of both problems and solution strategies, and of the methods for identification and analysis of these problems

and strategies.

Definitions

Problems in Dental Practice. During the formative stages of the study, considerable attention was devoted to defining what is meant by a "problem" in dental practice. Obviously, there are many problems which can be described. A patient who fails to appear for an appointment is a "problem," at least insofar as the impact on a daily schedule of activities is concerned; at another conceptual level, "paperwork" is a "problem." Since the study was concerned with what might be called the natural history of problems, we adopted a behavioral definition of problems which relates the perception of a problem to its attempted resolution. The following is the general definition of the concept of a problem in dental practice as used in the study:

> A problem in dental practice is an event, or a series of events, perceived by a dentist as having an adverse impact on the quality of care provided to patients, or the efficient operation of the dental practice. Either the seriousness or the recurring nature of the event suggest the need to alter the behaviors or circumstances which produce the events.

Problems were viewed at the most behaviorally specific level at which they are noticeable. In light of this definition, the failure of a single patient to arrive for a scheduled appointment would not be viewed as a problem; however, the recurring failure of patients to meet appointments may be. Similarly, "paperwork" may be a general problem, but a more specifically identifiable problem may be appropriate completion of insurance forms. These are examples of recurring problems; however, some individual events may be so important

that they are immediately perceived as problems. For instance, the failure of appropriate staff to respond to an in-office emergency may be so important as to require immediate resolution.

Solution strategies in dental practice. There are many ways in which identified problems may be resolved, or at least their resolution attempted. Some problems may be resolved by altering the office environment--for instance, adding equipment; others may be resolved by staff training either from the dentist, through outside consultation or assistance, or through continuing education. Problems may be apparent, direct, and easy to solve, or complex and difficult requiring trial and error or repeated attempts to change. The present study was interested in identifying the strategies employed to effect the changes which are recognized as desirable. A solution strategy involves both resources (e.g., other dentists to talk with about the problem, access to continuing education, libraries or files of materials, etc.), and a plan for using the resources.

The definition developed for solution strategies was:

> The identification, selection and pattern of use of available resources in an effort to alter the behavior or circumstances which produce a particular problem in dental practice.

We explicitly recognize that there may be both formal and informal means of resolving problems:

* planned-for solutions are not always forthcoming;

* repeated attempts may be necessary to resolve a problem; and

* some problems may be so intractable that repeated attempts at resolution are unsuccessful, or only marginally successful.

It was important to us to try to capture the many different ways in which solution strategies are formed, and the resolution of problems attempted. While we recognized that there are formal mechanisms which exist to help dentists in solving problems, such as dental consultants, and continuing education, we also recognized that many problems are faced and overcome by dentists in a less formal manner, through journal research, peer consultation, and even individual creative response. In identifying solution strategies we wanted to be able to specifically identify both the resources used, and the order and pattern of their use. For instance, in evaluating the quality of a new restorative material before use in the office, a dentist might:

* read the advertising literature about the product;
* talk with a supply house representative;
* talk with fellow dentists to see who may have used the material;
* take a continuing education course where the material was used;
* read journal literature to find evaluations of the product; and
* conduct in-office research where some patients are treated with the new materials.

Some dentists may use all of the resources; others may reach what is for them a satisfactory resolution of the problem of evaluating the new material after reading the advertising literature and consulting with fellow dentists.

In attempting to learn about how dental professionals perceive specific practice problems, we designed study methods to allow for both the written explication of problems and solution strategies and for direct interaction with solo general dental practitioners and dental practice consultants. Explicit consideration was given to developing information on the entire range of problems which may confront the practicing dentist, including not only clinical and non-clinical problems, but also the types of personal and inter-personal problems which may affect both clinical practice and practice management.

THE STEERING COMMITTEE

Overview

The study Steering Committee was composed of six members; four general dental practitioners and two dental practice consultants. The Committee was selected to represent a wide range of differing practice characteristics and organizational status within dentistry. The charge to the Steering Committee was to serve in an ongoing advisory capacity to the study staff in guiding the development of the study, reviewing and testing study instruments, and reviewing study outputs. The Steering Committee met three times during the course of the study; twice during the study's developmental stages, and once following the Task Group meetings to provide advice and guidance regarding the analysis of study results and the formatting of reports.

Selection of the Steering Committee

The Steering Committee was nominated and selected during the first month of the study. Nominations for membership on the Committee were developed by the Contractor (based on past experience and contacts developed during the course of a previous policy study in continuing dental education), and by representatives from the Division of Dentistry (based on their experience and contacts). Approximately thirty nominations were gathered and reviewed by study staff.

In making selections for Steering Committee membership, study staff were guided by the desire to constitute the Steering Committee to represent as broadly as possible practitioners and dental consultants with varying charac-

teristics. Attention was given to such variables as:

* length of time in practice;
* location of practice (rural, urban, suburban);
* minority status as a professional;
* organization affiliation (within dental professional organizations); and

for dental practice consultants:

* types of consultative services rendered.

Study staff reviewed the nominations and submitted a suggested list of Steering Committee members and alternates to the Project Officer. Following approval of the suggested nominees, individual nominees were contacted and invited to serve as members of the study Steering Committee. A list of Steering Committee members and project consultants is contained in Appendix 1.

The First Steering Committee Meeting

The first Steering Committee meeting was held in Baltimore, Maryland on December 13, 1979. The purposes of the meeting were to:

* discuss and add to a preliminary list of expected problems met by dental practitioners in solo practice;
* identify and discuss potential methodological issues in obtaining information from the Task Groups;
* examine and discuss criteria for the selection of Task Group members;
* discuss and provide initial nominations to four Task Groups for the study; and
* discuss and agree on a plan for obtaining additional nominations.

The meeting involved the use of a premeeting workbook

which included a section on problem identification, together with a one-day, structured meeting. The premeeting workbook provided the opportunity to test a possible format for gathering information about problems; the meeting allowed an opportunity to discuss and elaborate problems.

Premeeting Workbook. All of the Steering Committee members completed the relevant sections of the premeeting workbook (some sections of the workbook were not relevant for completion by dental consultants, e.g., clinical problem identification). The format used (see Appendix 1) produced variable responses, in the sense that some respondents provided detailed descriptions of problems while others wrote general statements. The range of responses is illustrated by the following quoted problem descriptions:

* "Acid etch restorative does not result in consistently high quality restoration of acceptable durability;" and

* "Painless treatment of the patient."

There was relatively little overlap among problems identified by the six Steering Committee members. Four clinical problems and four non-clinical problems were identified by more than one respondent. The total number of problems identified in the premeeting workbooks was 42 -- 19 separate clinical problems and 23 non-clinical problems. The lists of problems identified in the workbooks are included in Appendix 1.

Committee Meeting. During the course of the Steering Committee meeting, Committee members discussed and elaborated on the problems identified in the workbooks and the relation-

ship among problems, and made suggestions about possible ways of classifying the problems. Several tentative classification schemes were suggested and for one scheme the listing of clinical and non-clinical problems was integrated into the classification. The discussions of the problems themselves revealed a problem in the meeting process. The problems identified by Committee members in the premeeting workbook as discrete entities tended to be combined and broadened when subject to discussion. That is, if a specific problem was identified, the tendency in discussions of the problem was to generalize it to encompass other, related problems. As a result, the output of defined problems from the first Steering Committee meeting was a set of problem statements, expressed at a more general level, on the whole, than the problem definitions provided in the premeeting workbook. The lists of clinical and non-clinical problem statements resulting from the meeting is contained in Appendix 1.

The Second Steering Committee Meeting

The second Steering Committee meeting was aimed at extending and refining the information which had been learned in the first meeting. Refinement was directed toward a more explicit identification of discrete problems, and toward identifying the level of specificity at which a practitioner might recognize a problem and attempt to resolve it.

The specific purposes of the meeting were to:

* examine the preliminary list of clinical and non-clinical problems identified from the first Steering Committee meeting;

* revise and refine selected problem statements to produce behaviorally specific problems;

* identify possible solution strategies to selected important problems;

* discuss alternative classification schemes for clinical and non-clinical problems; and

* discuss the progress of the nominations process.

The experience of the first Steering Committee meeting indicated the need for a better format for eliciting problem definitions and attention to an adequate taxonomy for classifying problems. In the second Steering Committee meeting, the premeeting workbook was used to test more detailed response formats for identifying problems and solution strategies. The meeting time itself was allocated primarily to discussions of several options for methodological approaches to the problems of eliciting information from the Task Groups, and to a discussion of taxonomies for classifying problems and solutions.

Premeeting Workbook. The formats developed for use in the second Steering Committee meeting (See Appendix 1) appeared much more successful in eliciting detailed problem statements than the formats used in the first workbook. Steering Committee members completed the formats providing specific problem information, and in sufficient detail to convey the nature of the problem, how it was identified, when it occurred in practice, and its relationship to other problems. Analysis of the responses to the formats following the meeting showed that all response

areas on the formats were completed with comparable information except the area of relationships to other problems. In this area, information was provided which could not be specifically integrated into the overall analysis of problems.

Committee Meeting. The second Steering Committee meeting addressed several critical design questions relevant to the study. The first question related to the overall approach which might be taken toward gathering data from the Task Group members. Two options for data collection were addressed. One option involved gathering data on a large number of problems and solution strategies; the other involved concentrating on eliciting detailed information on a limited number of items.

The first option, involving the development of information on a large number of problems and solution strategies, would use a general taxonomy and specific examples as the basis for generating descriptions of problems and solution strategies. Respondents would be allowed to identify problems within areas of the taxonomy, or provide descriptive information on previously identified problems. This approach would favor the development of problems or solution strategies for later analysis.

The second option would involve using a restricted list of problems and solution strategies to elicit detailed information. Participants would be directed toward consideration of a limited set of items in order to gain the greatest possible depth of understanding about that set.

Subsequent to the meeting, a decision was made between the study staff and the project officer to adopt the first strategy. This decision was made in light of the exploratory nature of this study.

Development of a taxonomy of problems. A second design consideration addressed during the Steering Committee meeting was that of the development and refinement of taxonomies for classifying problems and solution strategies. The development of a taxonomy was important because it would provide a means of grouping similar types of problems for analysis.

Prior to the meeting, Dr. Roy Lindahl, consultant to the study, was asked to prepare a presentation outlining a possible taxonomy of dental practice problems. Dr. Lindahl was provided with the list of problems from the first Steering Committee meeting, notes on the various frameworks which had been suggested from that meeting, and copies of several papers which described classifications of dental practice activities (Bailit, et al., 1974; AADS, Practice Management Curriculum Guidelines). Dr. Lindahl analyzed the problems and the alternative classification schemes and produced a draft framework for consideration by the Steering Committee. The framework that he developed included a three part division of problems into categories called "management", "administrative/operational", and "technical". This division cut across the previously specified categories of "clinical" and "non-clinical" problems, and encompassed the several classification schemes

for problems which had been suggested during the first Committee meeting.

The framework suggested by Dr. Lindahl was accepted in principal by the Committee members; subsequent discussion clarified, defined, and further elaborated the framework into a formal taxonomy for problems in dental practice. Subsequent to the meeting, study staff developed definitions appropriate to each of the items specified in the taxonomy. The taxonomy, with definitions is shown in Figure 1.

Although the taxonomy was developed as part of the study design, it deserves attention independently from the study. Other dental practice taxonomies identified during the course of a literature search were oriented toward either practice management considerations (AADS, mimeo) or toward clinical practice activities (Bailit, et al., 1974). The taxonomy produced for this study, through the efforts of Dr. Lindahl and the Steering Committee may be the first which attempts to address the full range and complexity of dental practice activities.

The Steering Committee also reviewed a possible classification scheme for problem solutions which was developed by study staff. This scheme did not address solution strategies, but rather the identification of possible elements in a strategy (e.g., the discrete resources or activities which might in combination make up a strategy). The listing of items was expanded and refined during discussions and subse-

Figure 1

TAXONOMY OF PROBLEMS IN DENTAL PRACTICE

100 MANAGEMENT	200 ADMINISTRATIVE/OPERATIONAL	300 TECHNICAL/CLINICAL
Problems which arise as a result of, or incidental to, human interactions. This may include interactions with staff, patients, or other persons who come in contact with the practice, or the practitioners' own personal feelings.	Problems which relate to office coordination and management, not directed towards people. Problems of paperwork, overall efficiency and design of office, business and practice management concerns in general.	Problems which result from treatment(s) of the patient. This includes all phases of patient treatment from the patient's history to follow-up treatment procedures.
Problem Area Categories: 110 Patient management problems are those which result from interactions of patients with the practitioner and/or staff. This includes problems of patient motivation and compliance. 120 Personnel management problems are those which result from interactions of practitioner with his or her staff. This includes all phases of hiring, retention, dismissal, and motivation of employees. 130 Office management management problems are those which result from coordination of the working office among practitioner staff and other support. This includes problems of patient scheduling and flow of staff, practitioner, and patients. 140 Personal management problems are those which arise from or are incidental to the practitioner's personal attitudes, values, and capabilities with respect to the professional role.	Problem Area Categories: 210 Office management (dental)problems are those that result from decisions about the conduct and procedures used in the management of the practice, considerations of the practice style, and marketing procedures. 220 Environmental management problems are those that arise from or are incidental to design of office and facility spaces; the work environment and its hazards. 230 Clinical efficiency problems are those which result from or are incidental to the effective use of equipment, time, dental products, and problems of coordination with professional support. 240 Business office management problems are those involving general business paperwork. Problems of cash flow, record keeping, and accounting. Decisions about fees, billing, recall systems, insurance coverages, credit, collection and office policies. 250 Practice analysis (clinical process management) problems are those which result from an analysis of the overall dental practice; problems of inadequate clinical skills, practice style, practitioner needs.	Problem Area Categories: 310 History and exam problems result from a need to record relevant patient information. Lack of adequate patient record-keeping can lead to diagnosis, treatment, and follow-up problems. 320 Diagnosis problems result from or arise incidental to the process of analyzing patient problems and providing a diagnosis. 330 Treatment plan and treatment problems result from decisions of selecting treatment procedure(s), initiating treatment, and taking into account possible problems during treatment. 340 Follow-up problems result from either post operative complications or judgement decisions by the practitioner for necessary and/or best follow-up treatment procedures.

quently by study staff. Figure 2 shows the final list which resulted.

Third Steering Committee Meeting

The third Steering Committee meeting was intended to provide members with feedback on the conduct and results of the study, and to solicit advice and assistance in the analysis and presentation of study results. No premeeting workbook was prepared for this meeting, but members were sent a draft report of the study outlining the study development and methods, and progress to date. Also included in the report were sample summaries of problems identified by Task Group members.

Steering Committee members were asked to review the report and consider the adequacy and value of the summaries and possible avenues of analysis which might be taken in the final report.

During the Steering Committee meeting, study staff reported on the conduct and outcomes of the Task Group meetings and suggested some tentative conclusions for discussion. Committee members agreed that the conclusions of the study were of importance to dental practitioners, dental educators, and to the profession of dentistry as a whole. It was suggested that information resulting from the study be published, in addition to distribution of the final report, and that papers be prepared to address both an audience of practitioners, and an audience of educators.

The Steering Committee also discussed possible avenues of follow-up for the study. Recognizing that the present

Figure 2

ELEMENTS AND RESOURCES FOR PROBLEM SOLVING

Formal Learning Resources

* Graduate Training
* Post-graduate Training
  -- Post Graduate education
  -- Continuing education
* Dental Society Meetings
* Expert consultation
* Professional organizations (e.g., ADA information resources).

Informal Learning Resources

* Peer interaction (advice solicited or unsolicited)
* Supply House representatives
* Study clubs
* Independent study
* In-office research
* Staff experience
* Trial and error (personal experience)
* Community interaction/resources
* Patients

study was of an exploratory nature, the Committee suggested developing studies which would confirm and extend the present findings, and gather more quantitative information about problems and solution strategies. Support for further research might be available through the dental professional organizations, or through foundations, in the opinion of Steering Committee members.

The Committee discussed the potential impact of study findings on dental education and dental educators, and Dr. Knowles, a Project Consultant, suggested that the final report include an analysis of the skills and competencies used by dental practitioners in problem solving. He commented that, if educators had knowledge of the skills and competencies used by practitioners to solve problems, it might be possible for them to assist practitioners in improving these skills and competencies. The Steering Committee concurred in this recommendation.

The Steering Committee also reviewed and commented on the descriptive summaries of problems prepared by the study staff. The Committee agreed that the summaries were understandable to practitioners and worthwhile to include as a part of the final report of the study.

THE TASK GROUPS

Overview

The study used four Task Groups of approximately nine members in each group, composed of dental practitioners and dental practice consultants. Each Task Group met once in a structured group meeting of one day's duration designed to gather information and insight into problems in dental practice and the solution strategies dentists use to resolve those problems. The study was designed to allow for an evolutionary process throughout the Task Group meetings. Information or insight gathered in one meeting was explored more fully in subsequent meetings; instruments used for data collection were altered from one meeting to the next to augment and improve the data collection effort.

Selection of Task Group Members

The Task Groups for the study were not intended as "representative samples" of the dental profession, either individually or collectively. However, the selection of Task Group members was designed and implemented so as to ensure that the Task Groups, both individually and collectively, included practitioners and consultants with a broad range of differing personal and practice characteristics.

Nominations. Nominations for membership on the Task Groups were obtained from a number of different sources. These included recommendations from:

* study staff and the Division of Dentistry, HRA;
* individual Steering Committee members;
* officials of dental schools;

* professional organizations, including
  -- American Academy of Dental Practice Administration,
  -- American Association of Women Dentists,
  -- American Dental Association,
  -- Academy of General Dentistry; and
* the staff of Dental Management magazine (to identify dental practice consultants).

Over 125 nominations were received and reviewed by study staff. Nominees were grouped according to length of time in practice, and within this grouping by such subsidiary groupings as number of auxiliaries, practice location (rural, urban, suburban), and organizational affiliation.

Selection of Task Group Members. Individual Task Groups were composed of nine members each. In several Task Groups, eight members actually participated in the meetings because illness or other commitments intervened. Seven members of each Task Group were dental practitioners in active practice; two members were practice consultants. A number of variables were considered in selecting members for Task Group participation. These included:

* length of time in practice
  -- 1 to 3 years,
  -- 3 to 10 years,
  -- 10 to 30 years, and
  -- more than 30 years;
* practice location
  -- urban (including inner city)

-- suburban, and

-- rural;

* minority professional status

-- sex, and

-- ethnicity;

* extent of participation in continuing dental education;

* professional organizational affiliation; and

* number of auxiliaries associated with the practice.

For dental practice consultants consideration was given to:

* types of service offered

-- financial,

-- personnel,

-- office design, and

-- clinical consulting; and

* professional locus

-- university based,

-- individual consultant, and

-- management firm-based consultant.

The nominations forms were reviewed for completeness by study staff and a listing of "eligible" nominees was compiled. "Eligibility" was determined by the quantity of information available about a nominee, since all nominees were otherwise viewed as inherently eligible because of the nominations process, and no attempt was made on the part of the study staff to rank or rate the qualifications of nominees.

Selection of Task Group members was accomplished by fitting candidates to a matrix specifying the ideal Task

Group distribution. Thus, a mix of eligible nominees was developed such that all desired characteristics of a Task Group would be satisfied (e.g., there would be representation on the Task Group of as many different category positions as possible).

Using this selection process four Task Groups were selected where each Task Group's members varied in terms of:

* length of time in practice;
* location of practice;
* sex and ethnicity;
* size of practice (number of auxiliaries);
* participation in continuing dental education; and
* membership in professional organizations.

Among all Task Groups, efforts were made to also vary additional factors:

* geographic location;
* type of practice (for consultants); and
* multiple variables (e.g., length of time in practice by practice location).

The Task Group members selected through this process are shown in Appendix 2.

Task Group Meetings

All four Task Group meetings were conducted using a similar format. A premeeting workbook was mailed to Task Group members approximately two weeks prior to each meeting; members completed and returned the workbook and responses were transcribed and organized to serve as points of departure for discussions at the meetings. Each meeting was one day in

duration and was loosely based on a structured group process format to encourage participation by all members.

Premeeting workbooks. The premeeting workbooks were designed around the taxonomy of problem areas in dental practice developed by the Steering Committee. Each workbook contained 13 separate response areas, corresponding to the problem areas in the taxonomy. A series of general problem statements were provided in each problem area to serve as examples of the types of problems encountered in the area. These general problem statements were derived from the initial set of problems identified by the Steering Committee. A completed example was included in the workbook to illustrate how formats should be completed and to provide an indication of the level of specificity desired in responses. Copies of formats for the premeeting workbooks are contained in Appendix 2.

Task Group members were asked to examine each problem area in turn and to identify and describe a problem in that area. Members could either describe a problem suggested by the general problem statements, or describe an entirely different problem. The workbooks were completed and returned by Task Group members prior to the Task Group meeting. Study staff transcribed and arranged the problems identified by Task Group members and analyzed similarities and differences in the problems identified within each area. The transcriptions and analysis were used as the basis for discussions at the Task Group meetings.

Task Group Meetings. The four meetings were held in two series. Task Groups 1 and 2 met on May 21 and 23, 1980, respectively; Task Groups 3 and 4 met on June 24 and 26, respectively. All meetings were in Baltimore, Maryland. The timing of the meetings was chosen deliberately to allow for development and improvement of study methods and materials between the two series of Task Group meetings.

Task Groups 1 and 3: problem definition. Task Groups 1 and 3 addressed problem definition. The purposes of these meetings were to:

* add to a preliminary list of expected problems met by general dental practitioners during their practice;

* define selected problems in terms of their point of occurrence in practice; the ways in which they are identified as problems; and their impact on the quality of care provided to patients or the efficient management of the dental practice; and

* discuss identified problems in terms of their frequency of occurrence in practice, their severity, and their amenability to solution.

Task Groups 2 and 4: solution strategies. Task Groups 2 and 4 addressed solution strategies. The purposes of these meetings were to:

* identify possible solution strategies for a limited number of problems in dental practice;

* describe the variety of resources available to the dentist for resolution of problems, and the differing strategies, or patterns of use of resources which may be used to resolve problems;

* discuss the outcome of solution strategies in terms of their success in problem resolution; and

* discuss the similarities and differences among solution strategies aimed at differing problems.

REFERENCES

AADS (American Association of Dental Schools). Practice Management Curriculum Guidelines. Mimeo, No Date.

Bailit, Howard et al., "Quality of Dental Care: Development of Standards." Journal of the American Dental Association. 89:842-853, October, 1974.

CHAPTER 3:
STUDY RESULTS

INTRODUCTION TO CHAPTER 3

This part of the report presents the quantitative and qualitative results of the Task Group meetings, and the analysis of these results. The information available for analysis consisted of the premeeting workbooks completed by Task Group members, and notes from the Task Group meetings providing additional information, clarification, and opinions about practice problems and solution strategies. Information gathered through the workbooks included:

* descriptions of practice problems;
* identification of the point in the lifetime of the practice when the problem first occurred;
* impact of the problem on practice;
* how the problem was recognized;
* whether the problem was resolved;
* the resources used in problem solving;
* the strategies (e.g., pattern of use of resources) used to resolve the problem; and
* whether or not recurrence of the problem (or similar problems) was expected.

Analysis of the Task Group materials was a three step process. First, the individual problem descriptions were arrayed according to whether they were management, administrative/operational, or technical/clinical, and within these areas by the thirteen problem categories used in the study. Similar problems within categories were grouped together. Second, each problem was reviewed to extract information about the problem, resources used, and solution strategies,

and summaries were written for each group of problems. Finally, groups of problems were reviewed both within and between categories of problems to determine similarities in problems and solution strategies, and this information was compared with notes from the meetings to add to and refine the analysis.

The pages that follow present an overview of the quantitative findings of the study, followed by a summary of qualitative findings for each of the three problem classifications. The chapter concludes with a discussion of the findings.

OVERVIEW OF RESULTS

The Task Group Premeeting Workbooks and the subsequent discussions from the meetings themselves have provided a rich body of information for analysis. This section provides some quantitative results from the study workbooks about the number and distribution of problems identified in the study, and the distribution of the use of resources in problem solving.

The Number and Distribution of Problems Identified

Thrity-three Task Group members completed and returned workbooks. The total number of individual problems identified by Task Group members was 324; an average of 10 problems per completed workbook. The number of problems described in each of the thirteen problem areas averaged 25 problems per area, but varied from a high of 32 problems in the patient motivation area to a low of 15 problems in the area of diagnosis. Table 1 shows the number and percent of problems identified in each problem classification. The largest number of problems was identified in the administrative/operational area; the smallest in the technical/clinical area. The technical/clinical area accounted for only 25% of the problems described.

The number of participants in the Task Groups (33) represents a small sample of the dental practitioner population; therefore, no statistical tests of significance were applied to the numerical results. The finding that fewer technical/clinical problems were identified by Task Group members is noteworthy, however, because it is consis-

Table 1:

NUMBER AND PERCENT OF PROBLEMS DESCRIBED BY PROBLEM CLASSIFICATION

Problem Areas	Number of Problems Described	Percent of Problems Described
Management	107	33%
Administrative/Operational	136	42%
Technical/Clinical	81	25%
Totals	324	100%

tent with other findings from the study. Apparently, the technical/clinical area of dentistry results in fewer problems than areas related to the management and administration of the practice.

Resources for Problem Solving

Study staff reviewed the individual responses to the workbooks and extracted information about the resources and strategies used in problem solving. Each problem description was reviewed; all resources used as part of the problem solving strategy were identified. In addition, staff reviewed notes from the Task Group meetings themselves to identify additional resources mentioned during the course of the meetings. A Table showing the results of this analysis for each problem identified by Task Group members is presented in Appendix 3.

Table 2 summarizes the number and percent of times that specific problem solving resources were mentioned, by the type of resource and the problem classification. The resource most frequently mentioned by Task Group members was peer consultation. Independent study (journal reading) and use of consultants or other professional support (e.g., practice management consultants, lawyers, and accountants) received the same number of mentions and were the second most frequently noted resources. Continuing dental education, including both school-based continuing education and dental society meetings, was the fourth most frequently mentioned resource.

Use of resources did not appear to differ markedly from one problem classification to the next. Continuing education and consultants were mentioned slightly more frequently in the administrative/operational area; peer consultation was mentioned slightly less frequently in that area. Consultants and other professional support personnel were mentioned least frequently in the management problem classification. Trial and error (use of self as a resource) was mentioned most frequently in the administrative/operational area. Inspection of individual responses, and discussions from the Task Group meetings indicate that trial and error is frequently used in developing paperwork procedures and systems. The identification of patients as problem solving resources in the technical/clinical area relates to communication with the patient in such areas as history taking.

Table 2:

NUMBER AND PERCENT OF TIMES RESOURCES WERE MENTIONED BY TYPE OF RESOURCE AND PROBLEM CLASSIFICATION

Problem Area	CDE Dental Meeting		Consultants, Other		Independent Study		Peer Consultation		Staff		Patients		Trial and Error		Other	
Management	24	14%	24	14%	35	21%	38	23%	13	8%	5	3%	3	2%	25	15%
Administrative/Operational	31	16%	41	22%	30	16%	37	20%	14	7%	2	1%	15	8%	18	10%
Technical/Clinical	13	14%	17	19%	17	19%	20	22%	5	5%	7	8%	4	4%	8	9%
Totals	68	15%	82	18%	82	18%	95	21%	32	7%	14	3%	21	5%	51	11%

Table 3 compares the use of continuing education (both school-based and dental society meetings) with all other resources mentioned. It is apparent from this table that continuing education represents only a small fraction of the total resource use indicated by Task Group members. Again, this finding is consistent with information gathered during the course of Task Group meetings which suggested that continuing education was sometimes a component in problem solutions, but was not generally the only component.

Table 3:

NUMBER AND PERCENT OF TIMES CDE AND OTHER RESOURCES MENTIONED BY PROBLEM CLASSIFICATION

Problem Areas	Times CDE and Dental Society Meetings Mentioned		Times Other Resources Were Mentioned	
	Number	Percent	Number	Percent
Management	24	14%	143	86%
Administrative/Operational	31	16%	157	84%
Technical/Clinical	13	14%	78	86%
Totals	68	15%	388	85%

Finally, Table 4 compares the frequency of problems with the reported use of resources, by problem classification. Proportionally more resources were mentioned in the non-clinical areas of management and administrative/operational than in the technical/clinical area. This suggests

that fewer resources, on the average, are used in the solution of technical/clinical problems, a finding which is consistent with the discussion of Task Group members during the four meetings.

Table 4:

NUMBER AND PERCENT OF PROBLEMS LISTED AND RESOURCES USED BY TYPE OF PROBLEM

Problem Areas	Problem Frequency		Resources Used	
	Number	Percent	Number	Percent
Management	107	33%	167	37%
Administrative/Operational	136	42%	188	42%
Technical/Clinical	81	25%	91	20%
Totals	324	100%	446	100%

The following sections of this chapter present summaries of the qualitative information gathered regarding problem identification and solution strategies in the problem area classifications management, administrative/operational, and technical/clinical.

PROBLEMS IN MANAGEMENT

Practice management in dentistry frequently connotes the entire range of non-clinical activities. In the present study, however, the classification of management problems referred specifically to the human side of practice management. The general definition developed for management problems was:

> problems which arise as a result of, or incidental to, human interactions. This may include interactions with staff, patients, or other persons who come in contact with the practice, or the practitioner's own personal feelings.

The types of problems described as management problems were those which arose from problems of communication, the clash of personalities, or from the personality or values of people involved in the dental practice.

Patient Values and Personalities

A number of problems were described as existing from the personalities and values of the dentist's patients. Patient motivation, patient anxiety, and patient compliance problems were among those which spring directly from the values and personalities of patients. The problem of unrealistic goals for practice stemmed from an apparent clash of values or expectations between the patient and the dentist. These types of problems were recognized early in the life of the practice, were described frequently as unresolved or only partially resolved.

In some cases where the problem stemmed from the patient's values and the differing expectations of practitioner and patient, it appeared that problem resolution

really meant that the practitioner becomes resigned to lower expectations. During Task Group discussions, participants frequently noted that the time period directly following graduation from dental school and entry into practice was one which involved compromise and a sense of learning what might be realistically accomplished with patients.

Other problems, such as patient anxiety and patient motivation, could be resolved at least to some degree through patient education. Components of these educational solutions were relatively consistent and included providing appropriate educational materials and developing a systematic approach to the problem of educating the patient. In managing patient anxiety, for instance, Task Group members reported that they learned alternative analgesic techniques both in order to be able to educate the patient about such techniques, and to use them where necessary. The systematic approach to conveying information was well illustrated in the area of patient motivation for oral hygiene, where individual practitioners set up patient education sessions. Successful problem resolution involved both having the information present, and systematically providing it where needed. One Task Group member asked rhetorically how many practitioners had a closet full of unused home hygiene training aids.

The use of resources in problem resolution in this area seemed for the most part to relate to identifying educational information. In patient anxiety, for instance, continuing education was a resource for learning analgesic

techniques; consultants or other dentists were resources for identifying patient education aids. The establishment of systematic educational procedures in the dental office seemed, for the most part, to be accomplished by the dentist. During the Task Group discussions, it was noted that in the area of patient motivation there had been well known clinicians who had developed complete patient motivation programs which were offered as continuing education experiences.

Dentist's Personality

Some problems in the management area were viewed as arising from the dentist's personality. These were not the result of specific psychological states, but related to such factors as personal beliefs and values, or personal growth and development. These problems included practitioner self confidence, dentist's personal psychology, and other less frequently addressed problems such as neglect of physical condition and frustration over paperwork. Some problems of this type were easy to identify and were recognized early in practice, such as problems of practitioner self-confidence; others, like those associated with the dentist's personal psychology were more difficult to recognize. Task Group members who had experienced these problems generally reported them as resolved, or in the process of resolution. However, in discussions some members suggested that not all practitioners are successful in resolving personality-based problems.

The strategies used in problem resolution varied considerably. Some Task Group members reported using

specialized resources such as motivational seminars or psychotherapy to help themselves deal with personality problems. In other cases, problems seem to disappear without active attempts to resolve them; for example, in the case of problems with self-confidence some reported these as disappearing with experience. More often, participants seemed to attack the problem through self-analysis, goal setting, and participation in activities which would provide additional dimensions to their lives. These activities included participation in organized dentistry, continuing education, or civic activities.

Performance Related Problems

Many staff-related problems, problems with suppliers, and problems in selecting and using support personnel arise from the difference between the expectations of the dentist and the performance of others. These problems appear relatively easy to identify and are frequently recognized early in the practice; however, they tend to recur over time as the people involved change. For example, problems of training staff recurr as staff turnover takes place.

When Task Group members described successful strategies which had been developed for coping with these types of problems, they usually relate to improvements in communication and the establishment of regular procedures for approaching problem areas. In the area of staff training, for instance, office procedure manuals helped to assure consistency; in the area of relationships with suppliers, regular communication helped to overcome problems.

ADMINISTRATIVE/OPERATIONAL PROBLEMS

The area termed administrative/operational problems was considered separately from that termed management, although in practice it was sometimes difficult for Task Group members to discriminate between the two. The definition for administrative/operational problems was:

> those problems which relate to office coordination and management, not directed toward people. Problems of paperwork, overall efficiency and design of office, business and practice management concerns in general.

Some of the problems described in this area are problems which would be common to any small business; others are specific to the dental office. Problems in this area frequently arose from the need to market the practice, the clinical capability of the dentist, the office environment, and office procedures and systems.

Marketing the Practice

Dental care services, as a number of our Task Group members pointed out, are subject to fluctuations in demand. For the dentist just entering into private practice this means that a demand for his or her services will need to be stimulated among a patient population; for the dentist already in practice changes in competition, variations in the larger economy, and other factors create a need to promote the practice. Practitioners had no difficulty identifying the problem of a need to promote the practice as it arose either from competition, slow practice growth or the establishment of a new practice; however, some Task Group members appeared to incorporate marketing as a

normal part of the practice routine, not associated with any specific problem. During Task Group discussions, many participants indicated that patient recall systems and emergency scheduling policies were also viewed as "promotional" tools for the practice.

There was considerable variation in the outcomes reported for problem solving efforts in this area. Participants who described marketing efforts in terms of the establishment of a new practice indicated successful resolution--an expected result since the Task Group was composed of practicing dentists. Task Group members who described marketing efforts after the establishment of the practice seemed to view this as an ongoing activity where new and better "solutions" were being sought.

Strategies for problem resolution revealed a broad range of activities but fell short of advertising through the media. The strategies generally involved one or both of two types of activities. One activity was social networking which included participation in civic affairs or contact with other dentists, particularly specialists, who might be sources of referrals. The other type of activity was patient contact, which included newsletters, follow-up telephone calls or cards, and even gifts (for example, flowers) as incentives for new patient referrals.

Clinical Capability

A number of problems identified centered on the clinical capability of the dentist, and the office in general. These problems included the use of appropriate methods and

procedures for clinical efficiency, skills acquisition, and decisions about practice style. The root of these problems lay in the need to manage or control the services the dental office would be able to provide. In the area of methods and procedures for clinical efficiency this meant the appropriate management of the clinical work to be performed, including the coordination of staff, achievement of speed in clinical performance, and effective scheduling. Skills acquisition related to the need to maintain the clinician's capabilities; decisions about practice style affect the use of auxilliaries, decisions about association, and practice growth.

Problem recognition with regard to clinical capability was sometimes direct; for example, either excessive time to complete procedures, or a clear lack of some definable skill. The need to acquire new skills or procedures seemed frequently to be defined externally, as practitioners read or heard reports of new techniques. Practice style decisions were characterized as being recognized slowly over long periods of time.

Action in these problem areas generally resulted in favorable outcomes, although strategies varied considerably from one area to the next. Problems in clinical efficiency were generally resolved in the office, sometimes by staff cooperation and in-office research. Skills acquisition was generally accomplished using a two-part strategy which involved information gathering and practice in utilizing the skills, under supervision whenever possible. Decisions

about practice style exhibited more variation in reported success, and several Task Group members appeared to be in the process of working through problems in this area. In general, Task Group discussions on the problems of selecting and working with an associate indicated that this was a difficult problem which took time and patience to resolve.

Office Environment

The office environment itself was the occasion of a variety of problems reported by Task Group members. Occupational hazards, equipment selection, and office design were all discussed. Equipment selection and office design problems were recognized either by the deterioration or age of equipment, or by more general factors such as comfort, efficiency, or available space. In contrast, occupational hazards seemed to be identified external to the office-through the literature or through news reports -- which provided awareness of potential problems. Confirmation of the actual existence of a problem requires some direct action on the part of the practitioner, such as testing for mercury contamination.

The strategies for resolution of problems with occupational hazards generally involved the institution of preventive measures, based on the potential problem, without necessarily confirming the actual existence of the problem. Careful selection of materials (for control of mercury), scavenging systems (for nitrous contamination), and X-ray exposure monitoring were all mentioned as preventive measures. Strategies in the area of office design and

equipment selection involved extensive information gathering, solicitation of advice from a variety of sources, and finally decision-making or design activities by the practitioner. These areas were characterized by the use of a large number and variety of resources.

Procedures and Systems

A variety of problems was described which related to office procedures and systems. These included problems with insurance forms, managing cash flow, scheduling laboratory work, and paperwork problems generally. The most disruptive of these problems are readily recognized, such as the failure of laboratory work to arrive in time for a patient's appointment. Some paperwork problems are not difficult to recognize, such as problems in patient recall systems where the dentist may not recognize disparities in recall times until patients themselves call attention to the problem.

Problems in this area generally arose from failures to either establish or observe systematic procedures for accomplishing tasks; strategies to resolve problems reflected this difficulty. Strategies for problem resolution generally centered around designing or devising systematic policies or procedures for accomplishing particular tasks. Resolution of problems with laboratories involved establishing regular lines of communication; managing cash flow problems involved the development and clear specification of payment policies, and insurance forms management involved attempts to use a single form. Problems seemed generally responsive to these strategies, which for the most part

were developed by the practitioners themselves, or the practitioners with help from their staff members.

TECHNICAL/CLINICAL PROBLEMS

Technical/clinical problems were defined for purposes of the study as:

> problems which result from treatment of the patient. This includes all phases of patient treatment from patient history to follow-up treatment procedures.

There was not a great deal of commonality among problems identified in the technical/clinical area. Of 28 separate problems noted by Task Group members in this area, only 8 were described by three or more participants. Even in areas in which a problem was described by more than one participant, the details of the problem sometimes differed. With regard to selecting a treatment plan, for instance, some Task Group members described problems of selecting an appropriate plan given the patient's financial constraints. Others described the problem in terms of determining what the best treatment was for particular cases; still others noted problems in having to change a treatment plan after initiating treatment.

One dimension which did emerge from this area was that of communication. The most frequently addressed areas in technical/clinical problems were patient record keeping and post-operative problems; both of these problem areas centered around difficulties in communication.

Communication Problems

Patient record keeping referred generally to the problems associated with taking and recording an accurate and complete patient history. Identification of problems in this area was virtually always associated with critical events --

patients who had allergic reactions, references to lawsuits, etc.--caused by the failure to obtain a complete history or to file or flag information appropriately. The problem was frequently attributed to the patient's failure to provide information because they did not generally associate oral health care with other aspects of general health. Some Task Group members mentioned that patients inquired why their dentist needed to have personal health information; other Task Group members related anecdotes about critical events which had happened in their practices because appropriate patient information was not available.

Post-operative follow-up problems also were rooted in communication deficiencies; in this case it seemed to be the practitioner and not the patient who was at fault. The problem lay in failure to fully inform the patient of what to expect post-operatively. The problem was easily identified by late night phone calls from patients with post-operative pain.

Solution strategies to both these communications-based problems centered on systematic attempts to improve communications. In record keeping this was done by improving recording instruments and procedures, sometimes even having the dentist spend time taking the patient history as a means of insuring that necessary facts are gathered. In terms of post-operative follow-up, practitioners learned to explain fully to patients what might be expected in terms of pain or other symptoms, and to provide any medication or instructions necessary to deal with any contingencies.

DISCUSSION OF RESULTS

Recent literature in adult and continuing education, and in professional continuing education has led to suggestions that:

* the professional, as an adult learner, is basically problem-oriented in approaching continuing education; and

* continuing professional education needs to be reorganized in order to better conform to the problem-centered needs of the adult learner.

The present study was designed to look more deeply into the actual experience of dental professionals to learn what types of problems dental professionals experience, and the strategies they presently use to attempt to resolve problems. This type of activity is an important prelude to any attempt to develop problem-oriented approaches to continuing education, for an understanding of the types of problems which professionals face can help enhance the quality of education which might be provided.

The presentation of the results of the study provides a detailed look at the types of problems which were identified by the study Task Group members and the strategies they used to try to resolve these problems. In this section, the study results are more generally reviewed in order to address some generic issues relating to problem definitions and solution strategies, and to relate what has been learned about problems and their solutions to the types of competencies which professionals either employ or seek to employ in problem solving. It is in this realm of competencies that

the educator's potential role is most apparent.

The issues to be addressed in the following analysis are those which have been of importance throughout the course of the study. They include:

* Should education be problem centered?
* What is a "problem" in dental practice?
* What types of problems occur in dental practice?
* When do problems occur in dental practice?
* What resources are used in attempting to resolve problems?
* What is a "strategy" for problem resolution?
* What competencies and skills are employed in resolving problems in dental practice? and
* What different problems are experienced by different types of dental practitioners?

Should Education be Problem-Centered

The idea of problem-oriented education centers around the notion that individuals are motivated to learn when they can see the relevance and application of what they are learning to a particular problem they are facing. The notion that education should be problem-centered is not universally appealing, nor did the members of our Task Groups indicate that they necessarily approached continuing education as a problem solving tool. During Task Group discussions, one participant specifically objected to the concept, noting that general learning had a value of its own. A number of Task Group members indicated that they attended continuing education classes for a variety of reasons unrelated to specific attempts to solve problems. Reasons for attendance

included general interest, the opportunity to meet others or to hear a specific clinician, and as part of a more generalized involvement in their profession. On the other hand, it was apparent from the responses of Task Group members that attendance at continuing education classes or dental society meetings was often part of a strategy for problem resolution.

Clearly, the current system of professional continuing education in dentistry is serving multiple needs. A significant reorganization of this system toward a problem-centered approach could reduce some of the benefits which appear to attend the general learning aspects of continuing dental education. However, some attention to further development of problem-oriented approaches to continuing education is clearly warranted. In many problem areas described by Task Group participants, continuing education was not used as a resource in problem solving; in other areas, participants indicated that they took courses with little expectation that the course would be helpful in problem solving. Increased attention on the part of the educators to some of the real problems being faced by practitioners may help to provide more relevant and more useful educational experiences for the professional.

What is a Problem?

Although many published articles have called for an emphasis on problem-oriented education, none has really defined what is a "problem". This definition is of fundamental importance to developing an appropriate educational response.

If "problems" are completely idiosyncratic; that is, unique to the practitioner, the concept of organizing education around problems becomes difficult; each learner might require individualized instruction. In the present study the concept of a "problem" was defined both in order to determine whether or not practitioners could describe problems, and to determine whether different practitioners shared similar problems. The definition used was an operational one which related problems to solutions;

> A problem in dental practice is an event, or series of events, perceived by a dentist as having an adverse impact on the quality of care provided to patients, or the efficient operation of the dental practice, and either the seriousness or the recurring nature of the event suggest the need to alter the behaviors or circumstances which produce the events.

The success of the workbooks in gathering definitions of problems suggests that the operational definition provided was comprehensible and useful. More importantly, it appears that many practitioners experience similar problems, and understand and describe those problems in similar ways. Task Group members were generally capable of describing problems in terms of their point of occurrence, how they were recognized in practice, and how the impact on the practice was manifested.

The identification of problems was described differently for different problems. Many problems were recognized by a series of recurring events, some were recognized by a single event, and others by a slow process of realization. During Task Group discussions, participants

suggested that clinical problems were relatively easy to identify because both dental school training and continuing education give the dentist explicit standards of excellence for clinical performance. Dentists learn to match their own work, or the work of others, against these performance standards, and to recognize deviations from the standard.

What we do not know about problems is the variation among practitioners with regard to when a problem is defined as a problem. If problems are defined as recurring series of events, or by matching performance against some known desirable standard, it is likely that individuals will vary in terms of the amount of recurrence or the deviation from a standard they will tolerate as acceptable. This is an area which may profit from additional research; it is not solely of academic interest because the amount of "tolerance" which individual practitioners may exhibit for different types of "problems" may have significant impact on the quality of dental care provided to patients.

What Types of Problems Occur

The comparatively smaller number of technical/clinical problems identified by Task Group members, relative to management and administrative/operational problems is a particularly interesting result, and one which deserves special mention. It is common in surveys of the need for dental continuing education for respondents to address primarily, if not exclusively, needs for clinically related education. The present study was specifically designed to go beyond

the area of clinical problems and to make a deliberate effort to identify non-clinical as well as clinical problems faced by dentists in general practice. As a consequence, from the initial contact with the Steering Committee in the preliminary identification of problems, and throughout all of the Task Group meetings, special attention was paid to insuring that both clinical and non-clinical problems were identified and discussed.

Throughout the study, few participants have identified and described clinically related problems. The list of preliminary problems identified by the Steering Committee members contained relatively fewer clinical problems than non-clinical problems. This was the general pattern obtained throughout all of the Task Group meetings. The disparity in problem identification was so apparent that it was a focus of discussion in all of the Task Group meetings. For one Task Group meeting, the meeting agenda was rearranged in order to try to stimulate discussion of clinical problems.

The discussions with Steering Committee members and with the members of the individual Task Groups seem to reinforce one notion. That is, for the practicing dentist, clinical aspects of practice present fewer and less severe problems than the non-clinical problems associated with office management and administration. This should not be construed to mean that practicing dentists do not have clinically related problems. What is suggested, from the Task Group discussions, is that clinical problems in dental practice:

(1) are easier for the practitioner to identify when they occur; and

(2) have clearly defined and generally accessible resources available to assist in their resolution.

The reasons suggested for this situation relate both to the training of dentists, and to the professional support systems which presently exist.

Dental school training was considered to contribute to the ability to recognize clinical problems because of the emphasis on perfection which was said to characterize training methods. Because of this training, Task Group members suggested that they felt secure in their ability to detect differences in clinical care quality. Additionally, the range of resources available to support the professional in helping to improve clinical skills is extensive. Continuing education courses, study clubs, society meetings, the informal network of peer associations, and the journal literature are all readily available resources which may address clinical problems.

Viewed from the perspective that basic education and extensive professional support systems are designed to solve clinical problems and improve clinical skills, the finding that clinical problems are less frequently mentioned than non-clinical problems is more easily understood. Since practitioners apparently have the competencies required to identify the problems, identify and access the resources necessary to resolve the problems, and apply a problem-solving strategy similar to that used in undergraduate

education, clinical problems have less saliency.

Task Group discussions tended to confirm the similarity between undergraduate and post-graduate models of clinical learning. For instance, Task Group members described the acquisition of new skills in practice as involving information gathering from a variety of sources, followed by supervised practice. This was said to conform closely to the way learning took place in dental school.

The majority of problems identified by Steering Committee members, and later by Task Group members, lay in the areas of management and administration. The problems described were discrete and limited in scope. Considered together they illustrated the range of activity which is frequently encompassed in dentistry under the general rubric of practice administration. Task Group members suggested during their discussions that the entire area of practice administration was one for which they were less well prepared by training. The disparity between problems identified in the clinical and non-clinical areas, and the differences in viewpoints taken during Task Group discussions regarding the relative ease of problem identification and problem solution suggest that dentists entering practice are not generally provided with the skills and competencies necessary to solve practice management and administration related problems. Additionally, the evidence suggests that continuing education does not systematically provide the

support necessary in terms of training in the skills and competencies needed for the efficient management of a dental practice.

When Do Problems Occur?

Problems occur throughout the lifetime of a dental practice, and different types of problems appear to occur at different times. A very large proportion of problems identified by Task Group members were described as occuring early in the lifetime of the practice -- within the first five years. This tends to reinforce the notion that dental school education does not provide the skills and competencies necessary to cope with the demands of practice, particularly those involving practice administration.

Although many problems were identified early in practice, others regularly appeared at other times, and problems generally seem to evolve over the lifetime of the practice. For instance, a common problem in the middle years of practice was a sense of boredom and frustration with the routine aspects of dental practice. A problem in the later years of practice revolved around the transfer of the practice, either by sale, or through bringing on an associate to take over the practice.

Some problems were not referenced against time in practice, but against specific events which might occur at any time, e.g., "after hiring a new staff member." These types of problems tended to recur as the event recurred. Finally, some problems were occasioned by the environment

and tended to affect all dentists at the same time. Problems of this type included the growth of third party insurance, revelations about occupational hazards, and fluctuations in the general economy.

Resources for Problem Solving

Task Group members described a wide variety of resources which they used in resolving problems. Resources most commonly used included continuing education, dental society meetings, independent reading in journals, other dentists, and dental consultants or other types of professional support (lawyers, accountants, etc.). Perhaps the most significant finding with respect to the use of resources was the fact that most Task Group members described the use of multiple resources in problem solving. The two most frequently mentioned resources were other dentists (peer consultation) and independent study or journals. While we do not wish to attach too much importance to numbers because of the nature of the study, this apparent emphasis on the less formal and more personal resources may be reflective of the self-directed nature of problem solving among our Task Group members. Certainly, no single informational, educational, or consultative resource seemed favored out of proportion to other resources, nor for the most part was a single resource sufficient for problem solving.

Strategies for Problem Solving

Discerning strategies for problem solving was a difficult task. In terms of the study, we viewed solution strategies

as patterns of use of resources. In many cases, however, the order of use of resources was not indicated, or did not appear to make any difference to the solution outcome. Individual problems tended to differ in terms of whether consistent solution strategies were outlined, and individual Task Group members also tended to differ in terms of reporting ordered use of resources.

In the final Task Group meeting (Task Group 4) participants were asked not only to describe the solution strategy used in resolving problems, but also to indicate the degree of planning involved--from highly planned to unplanned. A review of responses in this Task Group alone showed that participants more frequently indicated a high degree of planning solution strategies, and generally the longer a Task Group member had been in practice, the more frequently he or she indicated solution strategies were highly planned.

Several things appear noteworthy about strategies. First, it is apparent that in many individual problem areas different resources may be used to achieve a problem solution. Second, solution strategies described for individual problem areas sometimes involve similar or analagous processes of problem solving even though individual components of strategies may not be identical. Thus, when faced with similar problems, one practitioner may read independently articles in journals, discuss the problem with peers, and

develop some procedure or system; another practitioner may consult with an accountant, take a course in continuing education, and modify an existing procedure or system to fit his or her office needs. The processes involved in the strategies described in this example appear to include:

* information gathering, using
  -- independent study, or
  -- the assistance of a knowledgeable expert
* training, advice, or assistance, to learn how to accomplish some desired task or to obtain guidance or supervision in getting the task done, using
  -- a knowledgeable peer, or
  -- a continuing education course,
* design and development
  -- creating some policy, procedure or form, or
  -- tailoring an existing one to meet the need described in the problem.

As indicated in the summary data on problems, many problems appear to have similar solution strategies, and some strategies appear applicable to more than one problem. The use of differing resources, however, tends to obscure the similarities in the processes involved in problem solving. In the following section, we look at the types of skills and competencies we believe dental practitioners are developing and using in problem solving. These skills and competencies correspond closely to the problem solving processes implicit in the descriptions of solution strategies.

What Competencies and Skills are Employed?

The problems identified and solution strategies described by the Task Group members reveals a variety of skills and competencies used by dental practitioners. Some of the skills and competencies described and discussed by Task Group members appear to be the product of basic dental education; others are acquired in practice. It is not clear from the present study how these skills and competencies are acquired, or the relative contribution made by personal experience, continuing education peer consultation, or other professional support. What is clear from the study is that dental practitioners, and particularly young dentists in the earlier years of practice, must work to develop or polish a variety of skills and competencies relating to managing human interaction and the complexities of business affairs. In the technical and clinical areas of practice, all practitioners appear to be better equipped with the skills necessary for problem solving. This does not mean that dentists are all bad managers and good clinicians; rather, it suggests that dentists better understand how to learn to be good clinicians than they understand how to learn to be good managers.

The design of the present study did not lend itself to discerning differences in the skills and competencies employed by practitioners in problem solving activities. This would need to be addressed directly by research questions which focused on the comparative effectiveness of individual practitioners in problem solving. Similarly,

the information provided through the study does not indicate how practitioners obtain or improve the competencies and skills they use in problem solving. There is some evidence from the Task Group discussions regarding the differences between clinical and non-clinical problem identification and resolution to suggest that practitioners feel more comfortable that their basic training has provided them with the skills and competencies necessary to deal with clinical problems.

Considered at the most general level, the following skills and competencies appear to be those used by dental practitioners in identifying and solving problems in dental practice:

* problem identification;
* information gathering;
* communication skills;
* decision-making skills; and
* competence in systems development and design.

A discussion of each of these areas follows.

Problem identification. Whether a problem is described as a single event or a recurring series of events; whether it is a clinical problem or a problem in management of the office it must be identified before it is resolved. Task Group members described how they learned in dental school to detect clinical problems by matching clinical performance to observable standards of technical

excellence. The detection of problems in other areas of dental practice also appears to operate on the principle of detecting the difference between an expected occurrence (the standard) and an actual occurrence. Task Group members described such problem identification procedures as matching expected productivity against actual productivity; expected patient load against acutal patient load; expected performance of staff against actual performance; and the expected behavior of patients against actual behavior.

The skills and competencies necessary to problem identification would appear to relate to the ability to establish standards for measurement. This includes;

* setting personal and practice goals such as goals for productivity, patient load, income, style of practice;

* setting performance standards for staff, office systems, professional support, laboratory services, and the dentist in terms of clinical efficiency and types and quality of services to be rendered; and

* setting goals for patients in terms of patient performance or understanding, compliance, or acceptance of treatment.

Information gathering. Many solution strategies involved some type of information gathering activity. Task Group members described needs for information about staff members for hiring purposes, about dental equipment or materials for selection decisions, about office systems, accounting tools, financing, and a host of other information needs. Resources such as other dentists, the journal literature, supply house representatives, continuing education

and dental society meetings were mentioned in connection with information gathering activities. Some information seems relatively accessible, for instance clinical information found in the dental literature, information on occupational or office hazards, and information on office design. Selection of office systems, insurance, or equipment often seemed to involve the use of multiple resources in information gathering.

Communication skills. A number of solution strategies described by Task Group members involved the development or use of communications skills. Sometimes the skills involved learning to feel more comfortable in talking with people, for instance, feeling comfortable in discussing treatment plans, charges, or payment schedules with patients, or in discussing performance or remuneration with staff. At other times communications skills involved developing effective communications procedures, such as establishing regular communications with a laboratory, staff training, or developing effective educational routines to teach patients home oral hygiene.

Decision-making skills. The solution strategies to problems identified by Task Group members frequently involved information gathering, evaluation, and subsequent decision-making. Sometimes information gathering and advice on decisions seemed to be combined in the solicitation of advice from other dentists. Strategies involving decision-making skills or activities occurred in all problem areas

and ranged from staff hiring decisions to evaluation and selection of equipment, and selection of record keeping or other office systems. Sometimes decision-making led to a decision not to select but to develop some new method or procedure, which involves different skills.

Systems development and design. Many of the solution strategies described by Task Group members involved the practitioner in actual design of forms, processes or equipment. Task Group members reported tailoring their own accounting procedures or forms to fit their office requirements, developing office procedures manuals, designing their own equipment or designing the arrangement of equipment they had selected, and developing recall systems or other paper systems for office management. One area, the design of the office itself, is obviously of special concern to the dentist. Discussions during the Task Group meetings indicated that practitioners spent considerable time and effort in developing designs for offices; this would appear to be an area of problem solving which engages virtually all practitioners at one time or another during the lifetime of their practice. Recall systems were another area where Task Group members reported investing time and effort in developing or tailoring systems to fit their practice needs.

What Different Problems are Experienced?

Task Group members with differing characteristics were purposely selected in an effort to discern whether problems

experienced by practitioners differed according to characteristics of the practice or practitioners. The finding that a large number of problems are experienced early in practice may not be surprising to practitioners, but the implications for continuing education are important.

In addition to information about the timing of occurrence of problems in practice, some information was gathered from Task Group members which indicates that there are differences in problems, or the way in which problems are experienced among rural practitioners, women practitioners, and minority practitioners.

Rural practitioners. Practice in a rural area seems to exacerbate and enlarge the problems experienced by other dentists. The scheduling of laboratory work for instance, was described as a communications related problem by some practitioners, but a rural practitioner had to consider the timing of delivery as well, where delivery was over a 200 mile distance. In general, the problems of the rural practitioner appeared to relate to the accessibility of resources. Selection of staff and support personnel was described as difficult because there were few experienced people from whom to choose; self-maintenance of equipment was necessary because the supply house was far away; and problems with maintaining inventory or getting supplies or equipment were enlarged by the distances involved.

Women practitioners. Women practitioners appear

to experience some problems which are qualitatively different from their male counterparts. The problems identified by women practitioners existed both in the area of interactions between the woman dentist and her patients or others external to the practice, and in the area of personal psychology.

The problems which arose for the woman dentist out of interactions with others seemed to be a product of perceptions of the role or style of the woman dentist. Problems with patients included loss of patients who did not wish to visit a woman dentist (after the woman dentist had purchased an established practice), patients who expected lower fees from a woman dentist, and patients who expected to be able to sit and "chat" during office visits, wasting productive time. Problems noted with others outside the office included mention of the attempt of a banker to steer the practitioner toward a lower level of loans for used equipment, problems with a laboratory making changes to the dentist's prescription or specification of product on the apparent assumption that the woman dentist did not know the materials well enough, and a tendency for supply house representatives and detail men to "talk down" to the woman practitioner.

Problems which related to the personal psychology of the dentist sometimes revolved around the necessity (or desire) to combine dentistry and child raising, and the planning required to accomplish this goal. Several woman

dentists remarked in more general terms on the psychological impacts associated with being a woman in a largely male dominated profession. Problems here related to achieving a sense of acceptance as an equal, and a sense of confidence in a position as an integrated member of the profession (acceptance as part of the "old boy network").

Minority practitioners. Almost no mention was made of problems which affected minority practitioners differently from other dentists. The sole exception was some agreement between a minority practitioner and a woman dentist regarding the sense of acceptance and participation in dentistry generally. This was not perceived as a problem of self-confidence, but one of a sense of exclusion from full participation in professional activities.

Because of the limited number of representatives of any group in the Task Group membership, we cannot ascertain how representative these problems are among the respective groups. Further research would be necessary to resolve the issues raised here.

CHAPTER 4:

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this section of the report is to present the conclusions and recommendations of the contractor, Policy Research Incorporated, with respect to the findings of the study. The conclusions are based on:

* analysis of the workbooks completed by thirty-three Task Group members who described problem identification and solution strategies in dental practice; and

* information and discussion about dental practice problems and their solution drawn from four Task Group meetings.

The conclusions of the report should be interpreted with the understanding that the study was designed as a pilot effort. The extent to which the views or experiences of the Steering Committee and Task Group members who participated in this study reflect the views or experiences of dentists in general is not known.

The study was intended to produce information relevant to the individuals and organizations interested in the development and design of educational experiences for dentists which reflect real practice problems and take advantage of the types of problem solving strategies, skills, and competencies actually used by practitioners. Recommendations are directed both toward further avenues of research which might be undertaken, and toward educational efforts or approaches which might be adopted on the basis of what has been learned through the present study.

The following pages present the conclusions and recommendations of the study, as these relate to the

identification and analysis of problems, and the identification and analysis of solution strategies. Recommendations are listed in a priority order with general recommendations listed first, research recommendations second, and program development recommendations last. While research and development may occur concurrently, the recommendations have been ordered on the assumption that additional information is useful to development efforts. Implementation of the recommendations for developmental activities in problem-oriented education should take into account the varied resources available for continuing education in dentistry. Dental societies, dental schools, and study clubs are all resources for continuing dental education which may have the capability of becoming involved in problem-oriented education. Conclusions are presented together with a brief discussion of their supporting evidence and implications; recommendations are integrated with the conclusions and are set off by italics.

General Conclusions and Recommendations

The research conducted during this study was directed toward general dentists. The population surveyed through the workbooks and the Task Group meetings was a deliberately selected group of practicing dentists and dental practice consultants which was not intended as a representative sample of all dentistry. The methods used in the study produced an enormous amount of qualitative information which is not amenable to statistical analysis. The findings of the study suggest the need to conduct additional

and more rigorous research on problem identification and solution strategies in dental practice to confirm, refine, and extend what has been found.

General conclusions and recommendations. A number of conclusions may be drawn from the study. The following conclusions are offered with respect to the identification of problems in dental practice:

* the majority of problems which are identifed as problems by practitioners lie in the area of practice management and administration;

* a large number and variety of discrete problems may be identified within the area generally referred to as "practice administration;"

* a large number of problems appear to occur relatively early in the lifetime of a practice, within the first five years; and

* limited evidence suggests that rural practitioners, women practitioners, and perhaps minority practitioners either experience different problems, or experience problems in different ways from other practitioners.

The following conclusions are offered with respect to solution strategies employed by practicing dentists in problem solving:

* dental professionals are active self-directed learners who are capbable of responding to self-identified problems by planning and carrying out activities necessary to resolve those problems;

* solutions to prob'ems in dental practice frequently involved the practitioner in the identification and use of multiple resources;

* problem sclution often involves mixing the use of formal and informal resources, with use of informal resources occuring most frequently; and

* solution strategies for problems in dental practice range from highly planned activities specifically designed to effect the solution of a well-defined problem to virtually serendipitous solutions to problems which may not even have been formally defined or recognized as "problems" by the practitioner.

These findings suggest that the conduct of research to confirm and extend the findings of the present study have the highest priority.

> *Recommendation 1: Additional research should be conducted on the occurrence and distribution of problems in dental practice and the solution strategies employed by dentists in resolving these problems. Further research should:*
>
> -- *employ quantitative methods, including appropriate sampling and analytic techniques; and*
>
> -- *extend to additional populations in dentistry who may benefit from study, such as specialty practitioners, and dental auxiliaries.*

The conduct of further research may be the province of professional organizations, dental schools, or appropriate Federal agencies.

Further development of problem-oriented education. The intent of the study was to provide information of relevance to organizations and individuals interested in developing problem-oriented approaches to continuing dental education. The findings of the study suggest that dental practitioners are active learners who do identify and resolve their own practice problems. Continuing education is one of the resources frequently mentioned as part of the solution strategy in problem solving.

What is not known at present is whether a problem-oriented approach to continuing education would be more or

less effective in assisting practitioners to maintain their professional competency than the forms of continuing education presently available. Basic research should be conducted on alternative forms of continuing education in order to ascertain both the role of continuing education in maintaining professional competence, and the comparative efficacy of alternative forms of education.

> *Recommendation 2: Problem-oriented forms of continuing education should be developed and implemented on a pilot basis, and evaluated for their efficacy in promoting or maintaining the competence of dental professionals.*

The development and implementation of problem-oriented forms of continuing education could be carried out by either dental professional organizations or dental schools. The short-course format for continuing dental education as provided either through the dental schools, professional organizations, or dental society meetings may prove amenable to a problem-oriented focus.

Evaluation of the efficacy of problem-oriented education is a major research effort and should be conducted under appropriate sponsorship. National dental professional organizations or dental schools would be appropriate sponsors for such an effort; professional organizations, foundations or Federal agencies might be sources of funds. Reorganization of continuing dental education toward a problem-oriented focus should not be undertaken without evidence for the efficacy of such an approach.

The importance of non-clinical problems. Both the Steering Committee and the Task Group concentrated more

heavily on the identification and description of non-clinical problems than those of a clinical nature. Discussions with all four Task Groups regarding the disparity yielded essentially similar information. It is not that clinical problems do not exist, but that practitioners feel that they are better able to identify and resolve clinical problems, and thus they are not so frequently viewed as "problems."

The findings with respect to the distribution of clinical and non-clinical problems have implications which should be carefully considered. Discussions in both the Task Groups and the Steering Committee meetings addressed potential changes in both dental school training and in continuing education to reflect greater emphasis on practice management and administration. In both cases, participants cautioned that increased emphasis on practice administration could adversely affect clinical training. This may be particularly true in basic dental school training where any increase in emphasis on practice administration would virtually have to be at the expense of clinical work.

> *Recommendation 3: Present efforts at education for practice administration at both the basic and continuing education levels should be reviewed and analyzed. Attention should be directed toward:*
>
> -- *the relative emphasis on practice administration and clinical education in both basic and continuing dental education;*
>
> -- *whether increased emphasis on practice administration topics should be the province of either basic or continuing dental education, or both; and*

-- *whether increased attention to practice administration education would adversely impact the quality of clinical training.*

Any review and analysis of education at the level implied by this recommendation must involve the participation of organized dentistry, the dental schools, and dental practitioners. Research may provide some contribution in this area, however, workshops, conferences, and the cooperation of various groups in dentistry will be necessary to reach conclusions and policy decisions in this area.

Targeted Research

The identification and analysis of solution strategies for problems in dental practice is difficult and complex. Different resources have different functions and may be used differently in the resolution of problems. For instance, peer consultation may be used as a resource:

* to gather information;
* to seek advice;
* to obtain training in a skill; or
* to obtain supervision of an activity, or confirmation or consensus on an action.

In one problem area peer consultation may be used to gather information, while in another it may be used to obtain supervision. There did not appear to be any single resource, or set of resources which was preferred for problem solving, and various combinations of resources appeared to yield similar outcomes.

Research on the use of Resources. It is not possible

to determine from the data presently available whether the variations in the use of resources result from:

(1) the accessibility of the resources;

(2) perceived utility of the resources; or

(3) variations among practitioners in the skills necessary to use resources.

In order to develop sound approaches to problem-oriented education, additional efforts should be made to determine how practitioners presently use resources in the solution of specific problems.

Recommendation 4: Research should be directed toward dentist's selection and use of resources for problem solving, and the specific functions for which resources are employed. Issues of concern in the selection of resources include:

* *the accessibility of resources;*

* *dentist's perceptions of the utility of resources; and*

* *the skills necessary for using resources.*

Issues in the functional use of resources include:

* *resources for information gathering;*

* *resources for advice/skills in decision-making; and*

* *resources for specific skills training.*

This research could be conducted under the aegis of dental professional organizations or dental schools; support may be provided by professional organizations, foundations interested in dentistry, or Federal agencies.

Research on competencies used in problem solving. Task Group members' descriptions of solution strategies were analyzed for commonality in solution strategies and for

evidence of the types of skills and competencies which were employed in problem solving. Several conclusions may be drawn here:

* The general skills and competencies employed by practitioners in problem solving included:
  - -- information gathering skills;
  - -- communications skills;
  - -- decision-making skills; and
  - -- competence in designing and developing systems, procedures and policies; and
* There are many problems in dental practice which, by their nature, are recurring. To the extent these problems are resolved, they are resolved by the implementation of systematic methods and procedures designed to cope with recurrence, rather than prevent it.

The general problem solving skills visible in the strategies described by Task Group members are those which may be described for any problem solving activity. In the present study it was apparent that there were differences in the perceptions of Task Group members about the use of these skills in different problem areas. For instance, in solving clinical problems practitioners may be involved in information gathering, decision-making, and demonstration of the ability to systematically use a procedure. Task Group members expressed confidence in their ability to employ these skills and attribute this confidence to their training. In practice administration, however, less confidence was expressed, and Task Group members frequently mentioned not knowing how to locate information, not knowing how to evaluate information, and

proceeding in some areas on a trial and error basis. This situation was generally considered reflective of the failure of dental school training to provide the necessary background in non-clinical areas.

The research suggested in recommendation 4 would provide information about the selection and use of resources. The following recommendation is offered as a means of extending this knowledge for educational use, including for use in undergraduate dental education.

> *Recommendation 5: Research should be directed toward identifying and describing the specific skills and competencies needed for problem solving in dental practice*
>
> -- *such research should specifically address competencies needed for problem solving in practice management and administration.*

This research is necessary in order to provide information to educators about the appropriate content of educational experiences in a problem-oriented approach.

Targeted Development Activities

A principal concern during the developmental phases of the present study was the question of whether or not dental practitioners and dental practice consultants would be able to provide information about practice problems which would allow the identification of discrete problems and an understanding of similarities in the way problems were experienced. The findings of the study indicate that:

* dental practitioners can identify and describe discrete problems in dental practice, and can describe the means by which these problems were identified in terms of the events or occurrences which led to problem recognition;

* some problems in dental practice may be unique to an indiviudal practitioner, or occur among only a small number of practitioners because of specific practice, practitioner, or patient characteristics; and

* some problems in dental practice are shared in common among larger numbers of practitioners, may be identified and understood similarly by dental practitioners.

The ability of practitioners to recognize and describe problems is reflected in the products of the study workbooks which provided literally hundreds of problem descriptions. Review and analysis of these problem descriptions revealed both unique and common problems, and in areas where common problems were described there was evidence of similarity in means of problem recognition, and time of occurrence of the problem in practice. Some common problems were judged predictable by Task Group members because they had roots in factors common to all dentists, such as:

* the natural evolution of the dental practice and the normal life changes of the dental practitioner;

* the nature of the dental practice as a small business; and

* common external factors such as changes in the economy or the presence of third-party insurance.

Educational development. A general recommendation has already been offered regarding the development of problem-oriented educational experiences (Recommendation 2), as well as a specific recommendation for research on the competencies required for problem solving (Recommendation 5).

The following general recommendation for development efforts in problem-oriented education proceeds from these earlier recommendations.

> *Recommendation 6: Continuing education courses and programs should be designed and implemented which aim to enhance the problem-solving competencies of dental practitioners,*
>
> -- *particular attention should be directed toward the development of courses and programs tailored to specific practice problems in the area of practice management and administration.*

More specific recommendations follow.

Needs assessment. The ability of practitioners to identify and describe their own practice problems has some implications for researchers and educators. Many attempts at educational needs assessment depend upon the use of questionnaires which offer a limited "menu" of choices. Selection among these choices may not reflect the wide range of actual needs of practitioners. The ability to prepare and conduct problem-oriented approaches to continuing education is dependent upon the ability to identify problems. Therefore, a first priority for development efforts is the construction and use of needs assessment instruments which will allow for self-identification of problems on the part of practitioners.

> *Recommendation 7: Needs assessment instruments should be developed and used which allow the practitioner to identify his/her needs or problems.*

Needs assessments are presently conducted by dental societies, dental schools, and professional organizations. Development of instruments could take place at any or all

of these levels. The experience of this study suggests that dental practitioners can articulate their problems well, when given suggested response areas.

Courses aimed at specific types of practitioners. The number of discrete problems identified in the management and administration areas suggests that these are complex areas in which dental practitoners may not generally be skilled in identifying and resolving problems. In particular, the finding that many problems occur early in practice may suggest that the graduating dentist is not well prepared to cope with the difficulties of managing a practice. The implications of these findings suggest that:

> *Recommendation 8: Courses should be developed which aim at practitioners of varying lengths of time in practice, such as*
>
> -- *practice management courses for younger practitioners which might be sensitive to cash flow or income related problems,*
>
> -- *courses for practitioners in middle or later years of practice who wish to hire or associate, enter partnership or sell a practice.*

Courses related to problem identification. The study also attempted to analyze practice problems in terms of how they are identified. The conclusion drawn here is:

> * problems in dental practice range from single, simple events which are easy to identify as problems to highly complex situations which may be realized or recognized as problems with difficulty or only after a long period of time.

Problems appear to be identified by a process of

matching expectations against reality, that is, the practitioner expects one thing but something else happens. There would appear to be variation among individuals in problem identification. Some Task Group members, for instance, indicated that they could detect changes in productivity in their offices quite readily because they know what their expectations for productivity were; others did not appear to have this capability. In general it appeared that where clear outcome standards were available problem identification was more readily accomplished. This was illustrated in the clinical problem area where Task Group members claimed to have clear standards for technical quality. In areas where standards or expectations were less clear, problem identification was more difficult. The area of the dentist's personal psychology and continuing interest in dentistry was one where problem recognition took place over a longer period and without reference to specific events.

Problem identification differences have implications for education: The ability of practitioners to identify their own practice problems may be enhanced by an understanding of self-evaluation, goal setting, and various technical skills such as computing productivity or estimating practice growth.

> *Recommendation 9: Courses should be developed to assist practitioners in analyzing their own practices and identifying practice problems. Such courses should address goal setting in practice, techniques of evaluation, and skills in evaluating specific aspects of practice such as practice growth, productivity, and staff performance.*

The educational development efforts recommended above may be undertaken by dental societies, dental schools, study clubs, or even by individual clinicians involved in providing continuing dental education. The short-course format which characterizes much of continuing dental education may be particularly amenable to addressing discrete and well-defined problems in dental practice.

Developing information resources. Educational development efforts should be supported by improvements in the availability of information relevant to practice problems. Task Group members indicated that information relevant to solving particular problems was not always available, or was not available in a timely manner. Information appeared to be lacking in areas such as the evaluation of new restorative materials, or dental equipment, and the design of office systems, policies, and procedures.

> *Recommendation 10: Information clearinghouses, including for example, bibliographies of special collections, should be developed through which information about specific practice problems would be collected and disseminated.*

Some information resources are already available to practitioners and were referenced by Task Group members. Information is available on a variety of topics through dental professional organizations (e.g., ADA information packages or information provided through ADA Councils). Existing informational resources might be reviewed and revised in light of identified practice needs, and

their availability advertised broadly. More localized information resources could be developed through the dental societies or dental schools. Such resources could go beyond collections of published literature to include examples of materials such as scheduling or recall systems, office procedure manuals, or accounting systems.

APPENDIX 1:

STEERING COMMITTEE MEMBERS AND MATERIALS

Figure 2

1.2

FORMAT FOR THE PREMEETING WORKBOOK
FIRST STEERING COMMITTEE MEETING
110 PROBLEM IDENTIFICATION

CLINICAL PROBLEMS

Please identify up to 5 clinical problems commonly met by solo general dental practitioners during the lifetime of a practice. Describe each problem as completely as possible in the space provided. For each problem identified, rate the frequency of occurence of the problem in a practice, and the severity of the problem, using the 5-point scales provided. Remember, 1 is very frequent or very severe and 5 is not frequent or severe.

	Frequency Rating 1-5	Severity Rating 1-5
1. Please describe problem completely and concisely.		
2. Please describe problem completely and concisely.		

Figure 3

CLINICAL PROBLEM STATEMENTS IDENTIFIED AT THE FIRST STEERING COMMITTEE MEETING

	Identified at First Steering Committee Meeting	Identified in Premeeting Workbook
1. Patient motivation for oral hygiene	x	x
2. Crown and bridge failures in general - assignment of responsibility	x	x
3. Evaluation of dental products for clinical use	x	x
4. Material failures	x	x
5. Practitioner self-confidence, esteem	x	x
6. Dentists have inadequate skills in treating peridontal problems	x	x
7. Failure to follow up referral - patient compliance	x	x
8. Operating access, and visual problems	x	x
9. New skills/technique evaluation and acquisition ...	x	x
10. Scheduling affects quality of care - behind schedule	x	x
11. Lack of time, with a busy schedule, to allow for emergency care	x	x
12. Patient anxiety/expectations, pain control in general	x	x
13. Lack of communication among (3-way): ..... (a) patients (b) practitioner (c) specialist	x	
14. Patient emergencies in-office emergencies: ..... - drug reaction seizures - cardiac arrest - specialist	x	x

Figure 3 (concluded)

CLINICAL PROBLEMS

	Identified at First Steering Committee Meeting	Identified in Premeeting Workbook
15. Saving teeth that might otherwise be removed even when there's a question	x	x
16. Problems in selecting treatment	x	x
- evaluation of necessary and best procedure - ability of patient acceptance of treatment plan		
17. Unrealistic goals established for practitioners, by initial training and reinforced by CDE	x	
18. Lab work does not arrive in time for patient's next appointment	x	x
- communication problems - inadequate lab prescriptions and preparations by dentist and lab		
19. Overriding medical problems/treatments	x	
- drug interaction possibilities		
20. Occupational hazards such as bacteria and chemical exposure to the dentist - occupational safety and health hazards	x	
21. Clinical efficiency	x	
22. Post-operative complications	x	x
- dry socket - partial/crowns won't fit - pain		

Figure 1

STEERING COMMITTEE MEMBERS AND PROJECT CONSULTANTS

Steering Committee Members

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Figure 4

NON-CLINICAL PROBLEM STATEMENTS IDENTIFIED AT THE FIRST STEERING COMMITTEE MEETING

	Identified at First Steering Committee Meeting	Identified in Premeeting Workbook
1. Small equipment breakdowns or malfunctions	x	x
2. Cash flow - overhead, credit fee adjustment, collections, payment policies, third party payments	x	x
3. Hiring: when to hire, how, who (staff configuration)	x	x
4. Office training	x	x
5. Staff motivation and retention	x	x
6. Selection and appropriate utilization of other professional support, e.g.:	x	x
- accountants		
- legal counsel		
- investment		
- insurance counsel		
- management		
- architectural counsel		
- psychological counsel		
7. Relationships with suppliers - service	x	
8. Developing a realistic and motivating wage, salary, benefit package	x	x
9. Paper work problems:	x	x
- patient history		
- treatment records (especially for legal problems)		
- personnel records		
- insurance forms		
- recall systems		
- itemized statements		
10. Selection and utilization technology (computers) ...	x	
11. Evaluation of record keeping systems	x	

Figure 4 (continued)

NON-CLINICAL PROBLEMS

	Identified at First Steering Committee Meeting	Identified in Premeeting Workbooks
12. Personnel intra-actions:	x	x
- staff meetings - conflict resolution - delegation of tasks - job evaluation		
13. Staff-patient relations:	x	x
- staff continuing education - secretary/receptionist		
14. Staff productivity	x	x
15. Decisions about practice style:		
- expansions - contractions - configuration		
16. Marketing the practice	x	x
17. Conduct of clinical research in private practice	x	x
18. Inconsistency of insurance company forms and procedures	x	x
19. Truth in advertising for dental advertising	x	x
20. Dentists psychology - continuing interest and involvement	x	x
21. Design of facilities	x	x
22. Selection of adequate equipment	x	x
23. Goal setting and resource allocation - planning CDE or other strategies	x	
24. Creative problem solving	x	

Figure 4 (concluded)

NON-CLINICAL PROBLEMS

	Identified at First Steering Committee Meeting	Identified in Premeeting Workbook
25. Problem identification	x	
26. Establishing a practice	x	
27. Grouping operative procedures	x	

Figure 5 1.8

Clinical Problems Identified in Premeeting Workbook

	Number of Times Problem Identified
1. Block Injections are not as effective as they once were.	
2. Laboratory work does not arrive in time for patient's next appointment.	
3. Acid Etch Restorative does not result in consistently high quality restoration of acceptable durability.	
4. Dental Castings do not fit as well as they once did (even 1 year ago).	
5. I am constantly behind schedule and the quality of the care I provide is suffering.	
6. Self-confidence of the practitioner to try new techniques, materials, etc.	3
7. Patient emergency problems, i.e., fainting, possible heart attacks, seizures, or drug reaction. The problem is to be prepared (continual staff training and awareness) even though frequency is rare. However, if problem does occur it may be fatal.	
8. Crown and Bridge failures in general, fractured or loosened abutments, recurrent decay under crowns. Fractured facings or procelain. Broken solder joints -- laboratory failures -- dentist preparation imperfections -- problems of crown and bridge removal -- cementation. Psychological aspects of responsibility for failure (wear & tear, patient, dentists, lab.?)	
9. Mirror fogging -- or (cruddy mirror) working in wet reflected field. The general problem of working in inaccesible areas in mouth -- which might include the difficult problem -- small mouth -- saliva -- active tongue, lips, body movement -- etc. -- This opens up also the question of posture and possible neck, back and leg problems associated with poor positions.	
10. Saving teeth when questionable problems arise.	
11. Inadequate skills in treating periodontal problems.	2
12. Insufficient time in a busy practice to care for emergency problems.	
13. Evaluation of necessary and best treatment procedure.	

Figure 5

Clinical Problems Identified in Premeeting Workbook

	Number of Times Problem Identified
14. Which dental product is best for my use -- restorative materials, impression materials, reline material, equipment. Would be a problem that exists throughout lifetime of a practice with similar frequency.	
15. What is the best way to treat a particular situation and what end result could one expect (this would be a situation not encountered in dental school), e.g., would a particular partial denture function well and for how long. (Treatment planning problem). Would occur more frequently during earlier years of practice.	
16. How to deal with post-operative complication -- dry socket, partial crowns won't fit, pain. Would occur more frequently during earlier years of practice.	
17. Despite use of motivational films reinforced by dental assistant, hygienist, and dentists, many patients seem unconcerned with home oral hygiene. Patients exhibit large amounts of plaque at recall appointments even though proper home care is emphasized. The problem is how to motivate patients to maintain good oral hygiene.	2
18. From time to time, a patient with severe periodontitis, when referred to a periodontist, fails to follow through with treatment. The patient says he intends to seek treatment but doesn't. At each recall appointment, he says he knows he should be treated by a periodontist, but never seems to get around to it.	
19. Painless treatment of the patient.	2

Figure 5 1.10

Non-Clinical Problem Identified in Premeeting Workbook

	Number of Times Problem Identified
1. My turnover of chairside assistants has increased significantly during the past two years.	
2. The materials and instruments I need for a clinical procedure are not always prepared properly.	
3. Question of maintaining high level of interest, quality and competency in practice -- How to cope with same clinical and management problems year after year. Staff and patients change but Dr. is the same. How to continue to be fresh in approach, in ideas and interest and continually challenged by each new patient and not succumb to possible repitition and tedium. This general approach to the patient is probably the General Dentist's greatest ally in achieving his feeling of worth in his chosen profession. The multifaceted services a general dentist performs give him opportunity to treat many people in many different and unique ways.	
4. Cash flow? Keeping up with increased overhead costs, debt and inflation. Fee adjustments, payment policy, credit extension, possible interest charges (are they professional?), collection procedures, accounts receivable and payable.	3
5. Short term research projects not substantiated by practice procedures.	
6. Inconsistency of insurance company forms and procedures. Laws or rules should require reasonable uniform evaluation of forms and procedures. Too many insurance employees are inadequately trained for the decisions they make.	
7. Lying advertising.	
8. When to hire additional personnel -- what type of help would be most productive, e.g., another assistant or hygienist or associate, when, who, how.	
9. How to maximize productivity -- increase efficiency (#1 above would be a more specific facet of this topic) -- patient flow (proper scheduling, emergency time, fill in lists). Location, equipment, lease negotiations, hiring, firing, set office policy -- vacations, insurance, payments. Partnership? Hygienist? Incorporated? Efficient patient time flow to keep overhead down. Bookkeeping recall	2
10. Set up good patient records, bookkeeping, recall systems, insurance form system.	

Figure 5
Non-Clinical Problems Identified in Premeeting Workbooks

	Number of Times Problem Identified
11. How to keep office personnel working efficiently and contently.	3
12. How to deal with equipment malfunctions -- need to know more about one's own equipment.	2
13. How to deal with hiring and firing of personnel.	
14. Personal relationship of staff with patients.	
15. Having financial control of the practice. Components include: selection and utilization of an accountant and having the accountant provide advice and interpretation of financial statements. Most dentists receive a statement of earning and a prepared tax return.	
16. Selection and retention of employees that will contribute to the success of the practice. Usually a hit or miss approach.	
17. Developing a wage and salary plan that is realistic and motivating.	
18. Paperwork in general -- thoroughness of history and treatment records -- legality and liability accounting procedures -- computer -- banking reconciling -- Insurance form additional burden to staff (nerves and time) with no additional production -- hassels of detail which seem irrelevant to patient health and treatment. 3rd party intervention and possible changes in patient dentist relationship.	
19. Question of expansion of practice and or facilities -- rent more space, join group, take on associate, limit practice to procedures more likeable -- more economically productive services, length of work week, income size, build office, time spent out of office in professional pursuits (meetings, conventions, post grad education, organized dentistry office, etc.) Incorporation, partnership, when to retire? All related to general health and mental well being.	
20. Marketing the practice. The advertising issues may be a misleading one. Many practitioners have no idea how and why they gain new patients, other than through referrals.	
21. Design of facilities that contribute to the efficient and effective practice of dentistry plus selection of adequate equipment.	
22. Statement billing.	
23. Good maintenance of equipment.	

Figure 6

1.12

BEHAVIORAL CONSIDERATIONS

FORMAT FOR THE PREMEETING WORKBOOK
SECOND STEERING COMMITTEE MEETING
110: CLINICAL PROBLEMS

111. Indicate the clinical problem you selected in the category behavioral considerations:

Problem #:_____First three words of problem:_____

a. Describe the problem as it occurred in your experience:

b. At what point in practice did the problem occur?

c. How did you recognize the problem?

d. Were any special circumstances associated with the problem (e.g., a special type of client, a particular type of material)?

110: Continued

e. What was the impact of the problem on your clinical practice (e.g., reduced quality of care, patient dissatisfaction)?

f. Is this problem related to other problems, part of a larger problem, or the cause of other problems? ☐ Yes ☐ No

g. Please describe how this problem is related to other problems.

APPENDIX 2:

TASK GROUP MEMBERS AND MATERIALS

FIGURE 1

Problem, Definition and Solution Strategies in Dental Practice

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FIGURE 1 (continued)

Problem, Definition and Solution Strategies in Dental Practice 2.2

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FIGURE 1 (continued)

Problem, Definition and Solution Strategies in Dental Practice

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FIGURE 1 (concluded)

Problem, Definition and Solution Strategies in Dental Practice

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100 MANAGEMENT

110. The definition of patient management, and some general problems identified in the area are shown below. Please read the problem definition and the general problem statements, and complete the format on the following pages.

Patient management problems are those which result from interactions of patients with the practitioner and/or staff. This includes problems of patient motivation and compliance.

General problem statements

-- Patient motivation for oral hygiene

-- Failure to follow-up referral - patient compliance

-- Lack of communication among patients, practitioner and specialist

-- Staff-patient relations

-- Patient anxiety/expectations (e.g., pain control, patient confidence in general)

Please select problem and complete the format on the following pages to expand upon and define the problem you selected. You may have experienced a problem in one or another area indicated by the general problem statements, or you may wish to describe a completely different problem.

Please complete the Format to provide the following information.

a. Describe the problem as it occurred in your experience:

b. At what point in practice did the problem first occur?

c. Is this a recurring problem? _____ yes. _____ no.

d. How did you recognize the problem?

e. Were any special circumstances associated with the problem (e.g., a special type of patient, a particular type of material)?

f. What was the impact of the problem on your clinical practice (e.g, reduced quality of care, patient dissatisfaction)?

Please provide additional comments, if desired

Please complete the Format to provide the following information.

a. Briefly describe the problem:

b. What resource or resources did you use to resolve the problem?

c. What strategy (pattern of use of resources) did you select to resolve the problem?

d. How accessible were the resources?

e. What was the outcome?

-- problem satisfactorily resolved _____

-- problem resolved temporarily, recurrence expected _____

-- problem resolved partially, better solution sought _____

-- problem not resolved _____

f. Could the problem have been resolved differently? ___yes ___ no.

g. In what other way might it have been resolved?

Please provide additional comments, if desired.

Please complete the format to provide the following information.

a. Describe the problem as it occurred in your experience:

b. At what point in practice did the problem first occur?

c. What was the impact of the problem on your clinical practice (e.g., reduced quality of care, patient dissatisfaction)?

d. Problem resolution. Please check the statement which best applies.

1. I resolved this problem and do not expect it to recur _____.
2. I resolved this problem temporarily, but expect it to recur _____.
3. I resolved this problem, but expect similar or related problems to occur _____.
4. I have not resolved this problem _____.

e. Problem recognition. Please check the statement which best describes how you recognized the problem, and describe the events or circumstances which led to problem recognition.

1. A single event called the problem to my attention: _____.

   Explain: _____

   _____

   _____

2. A recurring series of similar events called the problem to my attention: _____.

   Explain: _____

   _____

   _____

3. A series of events occurred which were recognized as related and this called the problem to my attention: _____.

   Explain: _____

   _____

   _____

4. There were no recognizable events which called the problem to my attention; a growing realization the problem existed: _____.

   Explain: _____

   _____

   _____

5. Other: _____.

   Explain: _____

   _____

   _____

f. In your estimation, how long did the problem exist before you recognized it was a problem?

   _____

g. If you resolved the problem, or attempted to resolve the problem, how long after it was recognized did you attempt to resolve it?

   _____

Please complete the format to provide the following information.

a. Briefly describe the problem:

b. What resource or resources did you use to resolve the problem?

c. What strategy (pattern of use of resources) did you select to resolve the problem?

d. Strategic planning. Please indicate the degree to which resolution of the problem involved a planned use of resources.

1. Highly planned--resources specifically selected for what they could provide, and the order of use of resources was known in advance _____.

2. Moderately planned--resources selected for what they could provide, order of use of resources either not important or not planned _____.

3. Somewhat planned—resources selected which would possibly have relevant information, order of use of resources either not important or not planned _____.

4. Unplanned—selected different resources until problem was resolved; resolution was accidental (serendipity) _____.

5. Other--please explain: _____

e. What was the outcome?

-- problem satisfactorily resolved ____

-- problem resolved temporarily, recurrence expected ____

-- problem resolved partially, better solution sought ____

-- problem not resolved ____

f. If any of the following resources were used in problem resolution, please indicate which resource (or resources) and select the statement which best describes your use of the resource.

1. Continuing education course:

   a. I knew before taking the course that it would provide information to help resolve my problem _____.

   b. I took the course hoping that it would contain information to help me solve my problem _____.

   c. I took the course with no expectation of solving the problem _____.

2. Dental practice consultant:

   a. I knew before retaining a consultant that she/he could provide information to help resolve my problem _____.

   b. I retained a consultant hoping that she/he could help me to solve my problem _____.

   c. I retained a consultant with no specific expectation of solving this particular problem _____.

3. Independent study (reading journals or textbooks):

   a. I knew before beginning independent study where information necessary to resolve my problem was located _____.

   b. I read journals or textbooks hoping to find information necessary to help me resolve my problem _____.

   c. I accidentally found the resolution in the literature _____.

Please provide additional comments if desired.

_____

_____

_____

_____

APPENDIX 3:

SUMMARY OF PROBLEMS AND RESOURCES IDENTIFIED BY TASK GROUPS

SUMMARY OF PROBLEMS AND RESOURCES IDENTIFIED BY TASK GROUPS

100 Management

110 Patient Motivation	Problem frequency	STRATEGIES AND RESOURCES: CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; Peer consultation	Staff	Patient	Trial and error	Other, specify
1111 Patient motivation for oral hygiene	10	3	1	2	2	*	3	1	
1112 Patient anxiety	7	4	4	2	4				
1113 Patient compliance with instruction/ policies	6		4	1	3	4			
1114 Patient acceptance of treatment and diagnosi nosis costs	5		1	1	1		1		Join practice management group
1115 Staff/patient relation	2		1	1	1	1			
1116 Accepting Dissatisfied patient	1				1				
1117 Patient depersonali-zation	1								
Totals	32	7	11	7	11	6	5	2	

* Resource identified at Task Group meeting

100 Management

120 Personnel Management	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
	STRATEGIES AND RESOURCES								
1211 Staff training	7	2	3	2	1	1			Procedures manuals Individual training
1212 Staff performance	6								Discussion with employees
1213 When to hire staff	4	1			1				In-Office Research
1214 Staff motivation	3	1	1	2	1	2			Practitioner evaluation/ knowledge
1215 Staff productivity	2	1		1	1	1			Self
1216 Developing wage/ benefit package	2			1	1	1			Other small businessmen
1217 Evaluating prospective employees	2	2	1	1					Word of mouth
1218 Staff communication	2	1	1	1					
1219 Limits of expanded duty personnel as defined by state law	1								Read law
1220 Hiring too many people	1								
Totals	30	8	8	8	5	5	0	0	

100 Management

130 Office Management	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
	STRATEGIES AND RESOURCES								
1311 Lack of time for emergency care	7	1	1	3	2	1		*	Self Add Operatory
1312 Relations with suppliers	6				1	1			Communicate with supplier
1313 Identification, selection and use of professional support	6	1	1	1	3				Recommendations of friends Yellow pages Society insurance information (ADA, AGD)
Totals	19	2	2	4	6	2		1	

* Resource identified at Task Group meeting

100 Management		STRATEGIES AND RESOURCES									
140	Personal Management	Problem frequency	CDE; dental soc. meetings	Consultants; other prof. support	Independent study; Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
1411	Practitioner self confidence; esteem	8	3		11	11				Study club Hospital staff Join Academy Self assessment exam
1412	Unrealistic goals for practice	8		1		1				
1413	Dentists psychology; continuing interest	4	2	1	1	*				Self appraisal Commit to organizational dentistry
1414	Neglect of physical condition	1	1		1	1				Schedule routine exercise
1415	"I can do everything" complex	1								
1416	Creative problem solving 1	1			1	1				Built special office study group
1417	Creative problem solving 2	1			1	1				
1418	Personal frustration over paperwork	1	1	1	1					
1419	Job stress (economic basis)	1								
Totals		26	7	3	16	16	0	0	0	Not resolved

* Resources identified at Task Group meeting

200 Administrative/Operational

210 Business Office Management	Problem frequency	STRATEGIES AND RESOURCES: CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
2111 Establishing a practice	10	2	5	3	4			3	Involvement community affairs newsletter
2112 Marketing/Promotion of practice	9	3	1	2	2		2	*	Promotion programs
2113 Office procedures systems	4			*	*				*Office Manuals
2114 Oversupply of dentists	1								Community Involvement
2115 Problems with Supplies	1								Inventory control
2116 Truth in advertising	1								
Totals	26	5	6	6	7	0	2	4	

* Resource identified at Task Group meeting

200 Administration/Operational

220 Environmental Management	Problem frequency	STRATEGIES AND RESOURCES: CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
2211 Design of facilities	12	1	7	3	4	1		2	Bank
2212 Occupational health hazards	6		3	3	1	1			Product information; Specific equipment, e.g., scavengers, glasses, etc.
2213 Preventing cross infection	4	1		1	1	1			Sterilization techniques; Health Agencies
2214 Safety in office neighborhood	1								
2215 Handicapped patients	1								
Totals	24	2	10	7	6	3		2	

200 Administrative/Operational

STRATEGIES AND RESOURCES

230 Clinical Efficiency	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
2311 Selection of best equipment	8	3	3	1	4	*			Observe materials
2312 Equipment breakdowns	6	1	2	2		1		1	Hire maintenance man
2313 Appropriate methods and procedures	6	1	1		2	2		2	Developed Office manual
2314 Lab work arriving late	2		2		1	1			Postal Service Bus
2315 Having operatories with different treatment capabilities	1								
2316 Assume existing office and equipment	1				*				
2317 Failure to use rubber dam	1								
2318 Finding appropriate lab	1								
2319 Prolonged crown and bridge settings	1								
Totals	27	5	9	3	8	5	0	3	

* Resource identified at Task Group meeting

200 Administration/Operational	STRATEGIES AND RESOURCES								
250 Practice Analysis	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
2511 Skill acquisition	14	6	2	4	3			1	
2512 Product evaluation	9	4	2	3	3				
2513 Decisions about practice style	6	2	2	1	1	1			
Totals	29	12	6	8	7	1	0	1	

200 Administrative/Operational

240 Business Office Management

		STRATEGIES AND RESOURCES								
	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
2411 Cash-Flow	11	3	3	2	3	1		2	Develop collection procedures Phone calls Writing letters
2412 Paper work problems	10	2	6	3	5	3		2	
2413 Inconsistency of insurance forms	6	2	*	1	1	1		1	
2414 Setting fair fee schedule	3								
Totals	30	7	10	6	9	5	0	5	

* Resource identified at Task Group meeting

300 Technical/Clinical	STRATEGIES AND RESOURCES								
310 History and Exam	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; Peer consultation	Staff	Patient	Trial and error	Other, specify
3111 Patient Record keeping	17	2	2	2	3	2	2		Develop adequate system
3112 Keeping history and exam data updated	1			*	*	1			Common Sense
3113 History and exam are too detailed	1								
3114 Occlusal screening	1								
Totals	20	2	2	2	3	2	2	0	

* Resource identified at Task Group meeting

300 Technical/Clinical

320	Diagnosis	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
		STRATEGIES AND RESOURCES								
3211	Differential diagnosis	3								
3212	Oral manisfestations of systems problems	2		1	2	2	2	1		Health History
3213	Difficulty in diagnosis	2								
3214	Identifying the diagnosis problem	1								
3215	Allergic reactions	1		1		1				Health History
3216	Drainage on buccal mucosa	1		1	1	1				
3217	Diagnosis periodontal problems	1	1							
3218	Diagnosis too lenghty	1								
3219	Inability to diagnose	1								
3220	Obtaining adequate knowledge of occlusion	1								
3221	Diagnosis contradiction									
Totals		15	1	3	3	4	2	1	0	

300 Technical/Clinical

330 Treatment Plan and Treatment	STRATEGIES AND RESOURCES								
	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
3311 Selecting best treatment	8	1	2	2	2		2	*	Self determination Bank
3312 Operating access	4	1	1	1	1			2	Specific materials
3313 Patient in-office emergencies	3	1			1	1			Update patient records
3314 Longterm rehabilitation	1								
331									
3315 Keeping up with treatment changes	1	1	1	1	1				
3316 Neck and back problems of dentist	1	1	1						
3317 Failure to foresee future problems	1								
3318 How to treat multiple dentition	1								
3319 Improving esthetics (tetracyline staining)	1	1	1	1	1				
3320 Poreclain veneering excellence	1								
Totals	22	6	6	5	6	1	2	3	

* Resource identified at Task Group meeting

300 Technical/Clinical		STRATEGIES AND RESOURCES								
340	Follow-up	Problem frequency	CDE, dental soc. meetings	Consultants, other prof. support	Independent study, Journals	Other dentists; peer consultation	Staff	Patient	Trial and error	Other, specify
3411	Post operatory problems/pain	14		2	4	4		1	1	Preventive measures
3412	Post operatory complication	7	4	3	3	3		1		Preventive measures
3413	Follow-up care (oral health)	3		*						
Totals		24	4	6	7	7	0	2	1	

* Resource identified at Task Group meeting